spring2012

M SNRE

Stewards

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

Is This the Future of Forests?

An Ecologist's Sneak Peek into a Climate-Changed Future

features:

On a Mission

Miranda returns home to lead SNRE as dean

Change Agent

Yaffee reflects on three decades of teaching and mentoring

UNIVERSITY OF MICHIGAN

Walking the Walk

Growing up in Detroit, I always admired the University of Michigan. It represented excellence: a public institution giving voice to society's most important values. U-M was always leading, modeling the way, walking the walk.

In my first months as dean, I have developed a deeper understanding of how this greatness is achieved. It occurs through the synergy of a pursuit of excellence in teaching and research and commitment to positive societal change. SNRE shares the aspirations of the broader university, so much so that it is embodied in our very mission.

Sustainability and interdisciplinary approaches are the defining characteristics of SNRE today. The achievement of a sustainable society—the call to action in our mission—requires taking steps large and small. Embracing sustainability will extend into everything we do as a school. For example, I've emphasized the need for updating alumni records. The logic is simple: while the handwritten note will never go out of style (and is a personal favorite of mine), snail mail consumes more resources than electronic mail. Already since January, our appeals have resulted in more than 350 updated alumni records. Please take the time to confirm that we have the right contact information for you by going to snre.umich.edu/alumni.

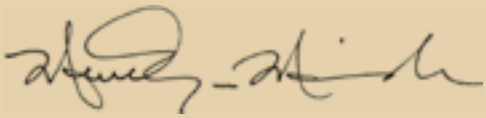
On a personal level, sustainability was the main theme woven throughout the 11th Annual Wege Lecture, which I had the honor of delivering in March. Even more exciting than being part of such a distinguished event and speaking for the first time before the broader university community—including both President Mary Sue Coleman and Provost Phil Hanlon—was the opportunity to share my passion for children's environmental health research. I have focused my entire professional career on exploring the interaction of science and policy as it relates to environmental health risks, with a special emphasis on children and other vulnerable groups. Nearly all of my research on this topic has been carried out through the Children's Environmental Health Initiative (CEHI), which I founded while at Duke University and moved with me to SNRE. CEHI is a wonderful complement to the richly diverse family of centers and institutes already housed within or affiliated with SNRE.

As I meet more of you as well as colleagues across campus, two questions keep being asked: Why did I accept this job and what do I hope to achieve?

While I have ideas on the latter question, I'm using my "honeymoon" as dean to gather information on what YOU want the school to achieve, whether related to curriculum, outreach, alumni services or research. I am eager to hear from the alumni community.

As to why I took the job, the answer is simple. I have always considered the University of Michigan to be the best public university in the world. Not only is SNRE a rich part of U-M's history, it is a pioneering leader on its own. Throughout our history, we have advanced new frontiers, whether the field was forestry, environmental education, environmental justice, or interdisciplinary research. Great minds are drawn to this school, and from here great ideas have been launched. I wanted to be part of that history and join in shaping its future. I am energized every day by the privilege of carrying our flag into that good fight.

Go Blue!



mlm

Photo by Austin Thomason, U-M Photo Services

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 On a Mission

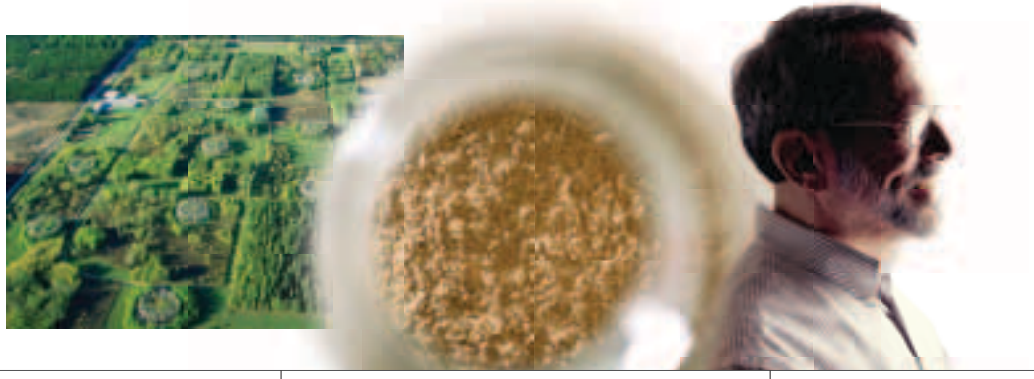
Growing up at Six Mile and Livernois in Detroit in the 1970s, Marie Lynn Miranda saw firsthand how economic sustainability is linked to health. She returns to her native state to lead SNRE in addressing those and other environmental challenges.

16 Forest from the Future

In a dozen circular 30-meter plots in northern Wisconsin, scientists grew a time machine. The Rhinelander experimental forest, which SNRE Professor Don Zak and his colleagues have studied for the past 12 years, is quite literally a forest of the future.

20 Change Agent

Nearly 43 years ago, Steven L. Yaffee came to the University of Michigan as a college freshman. Having been inspired by one of the classic texts of environmental awakening, his goal was simple: create positive change for the environment.



danasphere 4-11

A former GM plant becomes a design studio, two new books from SNRE faculty, transformations under way at the Dana Building, a gift from Dow ehances sustainability education and faculty publications explore everything from Los Angeles ports to Hispanic congressional voting records.

classnotes 24-29

Nearly two dozen alumni offered insights and shared professional experiences at a special school-wide symposium exploring conservation leadership. Nearly all were Doris Duke Conservation Fellows while at SNRE, and so the event doubled as a reunion for current and past students.

giving 30

Each year, SNRE alumni are helping the next generation of environmental leaders complete their degrees. This help comes in many sizes, but the most popular is financial support of the Annual Fund. Four scholarship recipients say thank you and share their career goals.

Stewards

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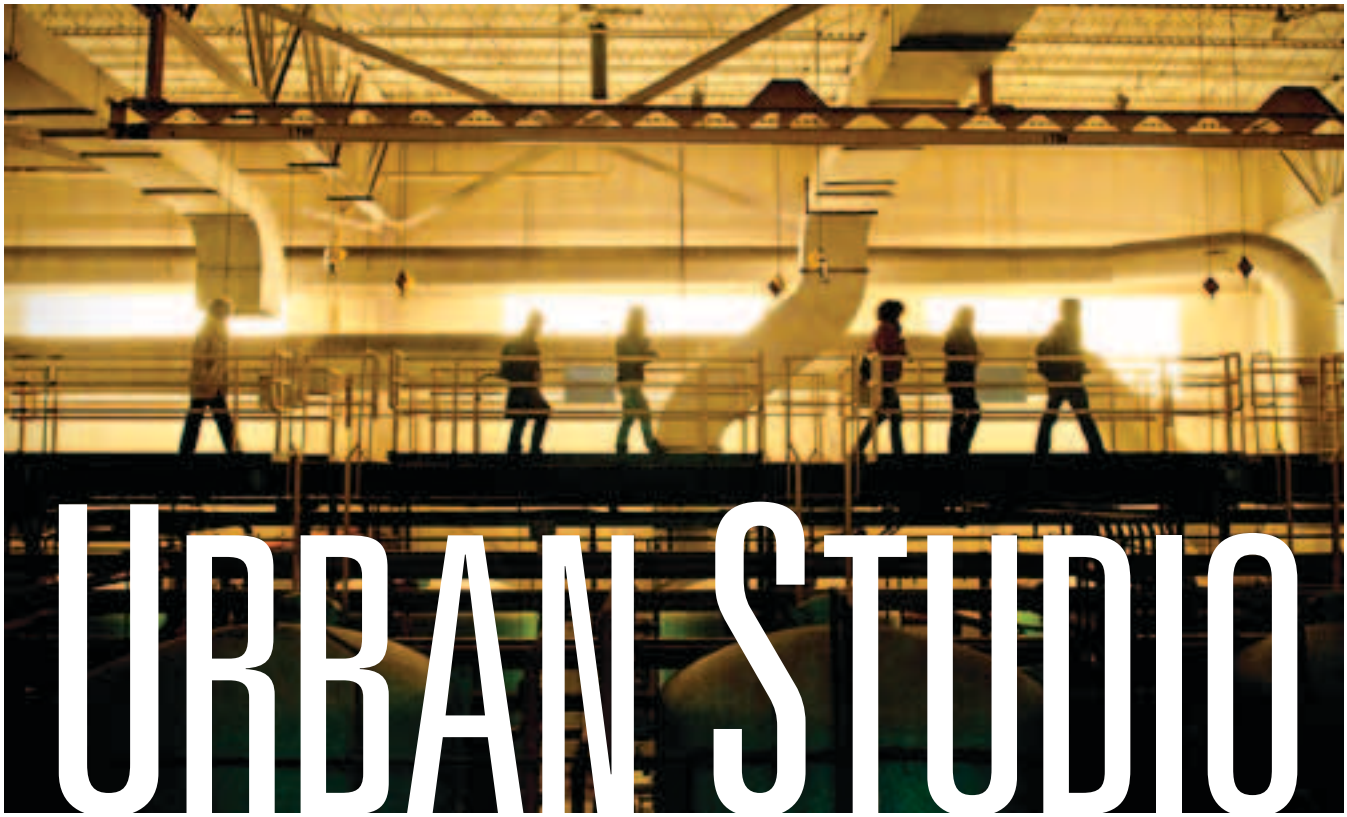


URBAN STUDIO

Former GM plant becomes classroom

Photos by Dave Brenner

Hundreds of acres that were once the site of a General Motors plant served as the design canvas this year for a group of University of Michigan graduate students completing their professional Landscape Architecture degree at SNRE. Their assignment: create designs that addressed the ecological and property management dynamics of a landscape in transition from a past industrial use to an uncertain future under three alternative economic scenarios in 2015 and 2027.

Adjacent to the Saginaw River on the northwestern edge of Saginaw, Mich., the site is part of a larger 700-acre former General Motors facility that still includes an active engine block manufacturing plant. This spring, students presented their proposed designs to reviewers from SaginawFuture, the RACER Trust, local practitioners and faculty.

The class, "Metropolitan Design Studio: Design in the Dynamics of Urban Landscape Recovery," is taught by **Joan Iverson Nassauer**, professor of Landscape Architecture. The broader purpose of the class is to prepare students to envision how urban places can recover—and their inhabitants can thrive—in the context of fundamental economic shifts and emerging environmental legacies.

The course encourages students to think beyond distinct categories such as brownfields, greenfields, open space, developed land and high density and low density. Instead, they are asked to envision new forms of development across scales in metropolitan systems.

TOP: SNRE STUDENTS INSPECT A WATER PROCESSING PLANT IN THE FORMER GM FACILITY TO BETTER UNDERSTAND POTENTIALS FOR FUTURE USE. **ABOVE:** TRINITY PIERCE, AN SNRE MLA STUDENT, PRESENTS HER WORK AT THE PROJECT'S FINALE TO CLIENTS.

MORE IMAGES OF THE STUDENTS IN ACTION:
flickr.com/photos/snre/

NEW BOOKS FROM SNRE FACULTY

The Localization Reader: Adapting to the Coming Downshift

The MIT Press (2012)
Raymond De Young and **Tom Princen**

De Young and Princen, both associate professors, compiled this collection of classic texts by such writers as Wendell Berry, M. King Hubbert and Ernst F. Schumacher, as well as new work by authors including Karen Litfin and David Hess. The book shows how localization—a process of affirmative social change—can enable psychologically meaningful and fulfilling lives while promoting ecological and social sustainability. Topics range from energy dynamics to philosophies of limits, from the governance of place-based communities to the discovery of positive personal engagement. Together, they point the way to a transition that can be peaceful, democratic, just and environmentally resilient. The authors are allocating royalties to two local organizations that exemplify localization: Growing Hope and People's Food Co-op.

The Native Landscape Reader

University of Massachusetts Press (2012)
Bob Grese

In this volume, Grese, a Landscape Architecture professor, gathers writings on nature-based landscape design and conservation by some of the country's most significant practitioners, horticulturalists, botanists and conservationists of the late 19th and early 20th centuries. Written with a strong conservation ethic, these essays often originally appeared in obscure, short-lived publications and are difficult to locate today, comprising a rich but hidden literature. Over many years of pioneering research into the work of Jens Jensen, O.C. (Ossian Cole) Simonds and other early landscape architects who advocated for the use of native plants and conservation, Grese encountered and began collecting these pieces. With this volume, he offers readers his trove.

briefs

Nassauer receives Distinguished Faculty Achievement Award

Joan Iverson Nassauer, a Landscape Architecture professor, has received a Rackham Graduate School Distinguished Faculty Achievement Award for 2012. The award honors senior faculty who consistently demonstrate outstanding achievements in the areas of scholarly research and/or creative endeavors, teaching and mentoring of students and junior faculty, service and a variety of other activities. Nassauer joined SNRE in 1997.

Rackham Distinguished Graduate Mentor Award given to Kaplan

Rachel Kaplan, the Samuel Trask Dana Professor of Environment and Behavior, has received the 2012 Rackham Distinguished Graduate Mentor Award. The award honors and encourages the efforts and accomplishments of University of Michigan faculty who serve as effective mentors of doctoral students. Recipients are recognized for service as adviser, teacher, advocate, sponsor and role model. Kaplan joined SNRE in 1973 as an associate professor and has been a professor since 1978. She has a dual appointment in the Department of Psychology within the College of Literature, Science, and the Arts.

Golden performance

A mobile website built for prospective SNRE students received a top award from the Ann Arbor Ad Club this year. The school's Office of Communications received a Gold Addy for the site, created for the Office of Academic Programs for use during the fall recruiting season. To see it, visit m.snre.umich.edu.

LEADERSHIP

Dow, U-M launch program to develop sustainability leaders

The Dow Chemical Company and the University of Michigan are bringing together 300 students from all areas of study to help solve pressing sustainability challenges. Under the Dow Sustainability Fellows Program announced in March, fellowships for master's, doctoral and post-doctoral students will be created, as well as a lecture series focused on sharing sustainability research and best practices.

Dow is providing a gift of $10 million over six years to support the program, which leverages U-M's nearly $1.25 billion research portfolio and more than 670 faculty members with sustainability expertise. The program will be administered by the Graham Environmental Sustainability Institute.

Joining U-M President Mary Sue Coleman and Andrew Liveris, Dow chairman and executive officer, on a panel following the gift's announcement was SNRE master's student **Berry Kennedy**. Kennedy is dually enrolled with the Ross School of Business as a member of the Erb Institute for Global Sustainable Enterprise. Also on stage was Laura Sherman, a current Graham Environmental Sustainability Institute doctoral fellow, who is working on mercury cycling in the environment.

"I think the Dow gift will strengthen sustainability programs across campus by facilitating interdisciplinary learning and knowledge sharing," said Kennedy, who is part of an SNRE master's project team working with the Sustainability Department at Dow. "I also think it will be a significant recruiting tool to attract top students to a variety of graduate programs."

Under another part of the program, teams of fellows at various levels from different disciplines will compete for awards supporting high-impact sustainability solutions that address a sustainability challenge. "Through this gift, we have the chance to ramp up our efforts in preparing future leaders in sustainability—in all areas of study, attacking all aspects of this complex issue," President Coleman said.

© Photos by Jeffrey Kowalski Photographic LLC

TOP: DOW CHAIRMAN AND CEO ANDREW LIVERIS, PRESIDENT MARY SUE COLEMAN AND BERRY KENNEDY WERE MEMBERS OF A POST-ANNOUNCEMENT PANEL AT THE DETROIT ECONOMIC CLUB. "I THINK THE DOW GIFT WILL STRENGTHEN SUSTAINABILITY PROGRAMS ACROSS CAMPUS BY FACILITATING INTERDISCIPLINARY LEARNING AND KNOWLEDGE SHARING," SAID KENNEDY (LEFT).

SNRE expands research strengths in SUSTAINABILITY

As part of a university-wide initiative to promote sustainability research, SNRE has filled two new faculty positions. Hired were **David Anthoff**, an integrated assessment modeler, and **Robyn Meeks**, an environmental economist. Both join SNRE as assistant professors this fall. Meeks will have a dual appointment with the Program in the Environment in the College of Literature, Science, and the Arts.

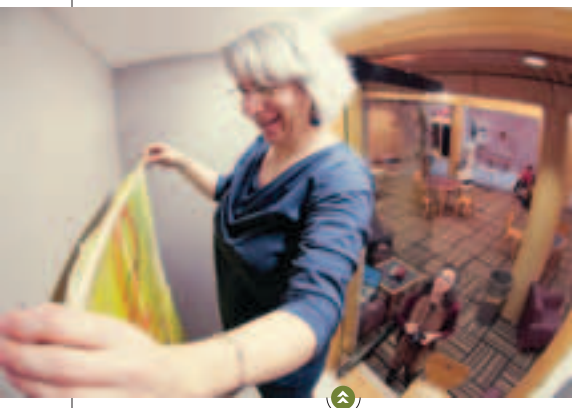
Anthoff is an environmental economist who studies climate change and environmental policy. He previously was a Ciriacy-Wantrup Postdoctoral Fellow at the Department of Agricultural & Resource Economics, University of California, Berkeley. He was a post-doctoral associate of The Economic and Social Research Institute (Dublin) from 2008-10. He holds a Ph.D. in economics from the University of Hamburg (Germany) and the International Max Planck Research School on Earth System Modelling, a master's degree in environmental change and management from the University of Oxford (UK) and a master's degree in philosophy, logic and philosophy of science from Ludwig-Maximilians-Universitat Munchen (Munich, Germany).

Meeks is a doctoral fellow in the Sustainability Science Program and a doctoral candidate in the Public Policy Program at Harvard's Kennedy School of Government. She focuses on environmental and development economics. Her doctoral research focuses on the impacts of improved water infrastructure on health and labor outcomes, which builds upon research that she carried out during a Fulbright Fellowship in Kyrgyzstan. She has a bachelor of arts in political science from Brown University and a master's in environmental management, with a focus in water science, policy and management, from Yale University. She has volunteered with the Peace Corps in Kazakhstan, interned at Resources for the Future and consulted for the United Nations Development Programme and the United Nations Framework Convention on Climate Change.

In addition, Meeks' husband, Jeremiah Johnson, who has a doctoral degree from Yale in environmental engineering with a focus on renewable energy, joins SNRE in a research role with the Center for Sustainable Systems.

GALLERY

Photos by Dave Brenner



TOP, ABOVE: LESLIE SOBEL PREPARES HER EXHIBIT INSIDE ONE OF THE FIVE GLASS SHOWCASES SERVING AS HOME TO THE NEW ART & ENVIRONMENT GALLERY.

To draw more attention to the influence of art in shaping our understanding of science and nature, SNRE has opened an art gallery inside the Dana Building. The Art & Environment Gallery features work from local and national artists whose work speaks to how people interact and understand the environment. The inaugural exhibition featured the work of Ann Arbor artist Leslie Sobel and five pieces exploring landscapes in the aftermath of Hurricane Katrina.

The exhibits rotate about every eight weeks and are presented in five glass showcases in the first floor Commons. "This gallery will draw attention to the intersecting values, both artistically and scientifically, of art and the environment," said **Sara Adlerstein**, associate research scientist at SNRE and gallery organizer and curator. "Because of the way SNRE's curriculum embraces interdisciplinary fields, it is a natural place to host this gallery. We are bringing art to our school to strengthen our sense of community and facilitate dialogue among students, faculty and staff in the spirit of green-building philosophy."

The second show features the work of Joe Trumpey, an associate professor of art and director of International Engagement at the School of Art & Design. Trumpey also is an associate professor at SNRE.

LEARN MORE:
snre.umich.edu/gallery

HOME IMPROVEMENT

Outside the Dana Building, a new garden is rising up, courtesy of students. The Dana Garden project on the building's east side is entirely student inspired, from site designs to the labor required to complete the transformation. Highlights of the new space include more native plants, sustainable site-design practices and a patio area and increased outdoor seating. Work is expected to be completed by early summer.

Photos by Dave Brenner

SNRE STUDENTS PREPARE THE SITE USING SHOVELS, BACKHOES, JACKHAMMERS AND OLD-FASHIONED ELBOW GREESE. SAMPLE DRAWINGS, MORE IMAGES AND A VIDEO CHRONICLING THE PROJECT CAN BE FOUND AT SNRE.UMICH.EDU/DANA_GARDEN

samplings

MORE FACULTY MEDIA CLIPS:
snre.umich.edu/newsroom

"Oil drilling operations have had a rough impact on wildlife in coastal areas over the years. The risk of a spill is all too real and the effects can be devastating."

Professor **Arun Agrawal**, in an interview with Capital News Service, which appeared in the *Petoskey (Mich.) News-Review*

"The reality is that exposure to aviation gasoline contributes to children's exposure to lead, something that we have known for a very, very long time is bad for children."

Dean **Marie Lynn Miranda** in an interview with the blog site aviationjustice.org

"We have insights that *single* insights won't generate. That's critical. By having a kind of multi-disciplinary team, we're able to pose questions that a single discipline can't."

Professor **Michael Moore** on SNRE's strengths as an interdisciplinary-focused school in an interview with *The Michigan Daily*

"[People] see business and the environment as oil and water. If it is good for the environment, it must be bad for business and vice versa. In the business community (and some in the business school), some see me as a treehugger. In the environmental community (and some in the environment school), some see me as a capitalist sell out. But to bridge these two communities yields great power of insight and influence."

Professor **Andy Hoffman** in an interview with *The Atlantic*

"My belief is that burned-out people can't help heal the planet. If people are mentally fatigued, from their work or from trying to restore their directed attention in ways that don't work, then they're not going to be able to help themselves, their neighbors, their community or the environment."

Associate Professor **Raymond De Young** in an article in the *Metro Times* titled "Your Brain on Greenery: A Conversation with environmental psychologist Raymond De Young"

BY THE NUMBERS

Since its origins in 1992 as the Corporate Environmental Management Program, the dual-degree program between SNRE and the Ross School of Business has graduated more than 250 students. Known as the Erb Institute for Global Sustainable Enterprise since 2005, the three-year program currently has about 100 students dually enrolled, making it the country's largest dual-degree graduate program in sustainable enterprise.

ERB ALUMNI: WHAT ARE THEY DOING?

The Erb Institute surveyed alumni last summer, and they reported spending about 60 percent of their time, not surprisingly, working on sustainabilty projects.

sector

63% FOR-PROFIT ORGANIZATON

- **19%** > Start-up
- **11%** > Non-profit
- **4%** > Government
- **3%** > Educational institution

industry

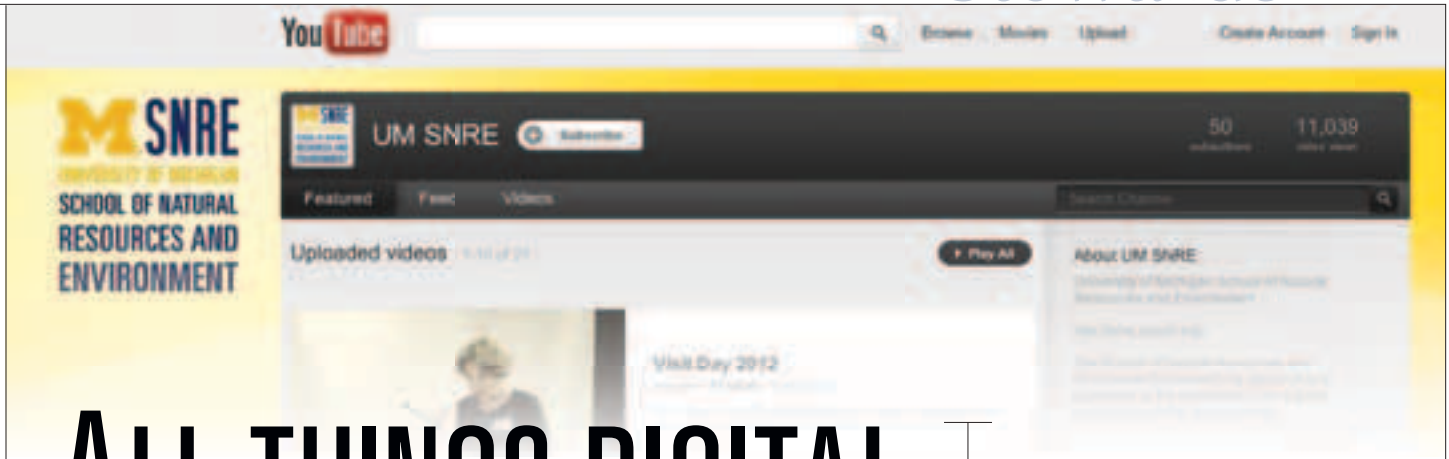
25% ENERGY / RAW MATERIALS

- **20%** > Consulting
- **18%** > Other
- **11%** > Retail / consumer goods
- **8%** > Financial services
- **7%** > Utilities
- **6%** > Transportation
- **5%** > High tech / telecom
- **4%** > Government

function

18% BUSINESS DEVELOPMENT

- **17%** > Consulting
- **17%** > General management
- **13%** > Corporate sustainability
- **12%** > Other
- **10%** > Finance
- **5%** > Operations
- **4%** > Marketing
- **4%** > Strategic planning



ALL THINGS DIGITAL

STEWARDS ONLINE

Only at stewards.snre.umich.edu.

Starting up

Some dream careers are simply figments of the imagination—until they're not. A few years ago, **Hannah Erickson** (M.S. '13) hadn't heard of biochar. Today, she is pyrolyzing food scraps into a soil amenity for Haitian farmers. **Jennifer McLaughlin** (M.S. '10) went from the Air Force to running her own solar design company. And **Mimi Mather** (M.S. '02) recently left her senior post at an international design firm to start her own studio. Every year, a handful of entrepreneurial SNRE students and graduates write their own job descriptions.

From ugly schoolyard to learning gardens

What if K-12 students had design ownership over the schoolyards where they spend much of their time—the ability to shape their own landscapes? What would they create? **M'Lis Bartlett**, a Landscape Architecture doctoral student at SNRE, is beginning to find out.

Regaining ground, recalling tradition

Several new initiatives at SNRE are engaging the school with the Great Lake Region's first natural resource managers. **Nick Reo** (B.S. '97, M.S. '02), a post-doctoral researcher and a member of the Sault Ste. Marie Tribe of Chippewa Indians, is

heading several tribally-focused projects in the Upper Peninsula. His family is from Mackinaw Island, at the very tip of Michigan's mitt, where Lakes Huron and Michigan kiss.

Exploring tea as product and place

Sarah Besky, a doctoral candidate in cultural anthropology at the University of Wisconsin, Madison, is SNRE's newest Michigan Fellow. She'll be on campus for the next three years furthering the work she explored in her dissertation, "The Darjeeling Distinction: Changing Agricultural Practice, Regimes of Value, and Visions of Justice." In it, she asked how ideas about the "empowerment" of farm workers, the connections of products to places and the promotion of internationally regulated social and ecological standards have informed the ways in which tea workers, brokers and consumers construct both a product—Darjeeling tea—and a place, the Darjeeling district of West Bengal.

SNRE VIDEOS

Visit our YouTube channel to view these latest works:

Dean **Marie Lynn Miranda** welcomes students admitted to SNRE during Admitted Student Visit Day and talks about the value of an SNRE education.

John DeCicco, professor of practice at SNRE and research professor at the Michigan Energy Institute, is a nationally known expert on green cars. He visited the North American Auto Show in Detroit and evaluated various alternative fuel vehicles, recommending the "greenest" choices for consumers.

For more than 25 years, SNRE students have been working on interdisciplinary teams to examine real-world challenges facing organizations large and small. In this video, clients and students share their impressions of the experience.

YOUTUBE:
youtube.com/user/umsnre

inquiry

All aboard: building ocean policy

Last July, President Obama's Executive Order established the first top-down mandate for comprehensive and coordinated protection of the United States' ocean, coasts and Great Lakes. In an article in *Conservation Letters*, SNRE colleagues **Julia Wondolleck** and **Steve Yaffee**, in collaboration with colleagues from Brown, Duke and Oregon State universities, recommend ways to integrate lessons learned from a two-year investigation of 27 marine ecosystem-based management initiatives into the national plan. The research documents the success of mixing top-down and bottom-up approaches, linking formal authority with informal motivations to collaborate. The article specifically advocates for collaborative research as a way to ease traditional tensions between fishermen and scientists; and nested institutional arrangements to help match the spatial scales of ecological and human systems—all suggestions that may significantly shape the National Ocean Policy.

Sievanen, L., Leslie, H.M., Wondolleck, J., Yaffee, S., McLeod, K., & Campbell, L. (2011). Linking top-down and bottom-up processes through the new U.S. National Ocean Policy. Conservation Letters, Volume 4, Issue 4, August/ September 2011.

Dirty metal: exports and CO_2

China's position as both the world's largest carbon dioxide emitter and largest merchandise exporter makes it an important candidate for the environmental input-output (EIO) method of quantifying the CO_2 byproduct of an economy's exports. Structural decomposition analysis, as outlined by SNRE Assistant Professor **Ming Xu** and colleagues in *Energy Policy*, takes EIO a step further by breaking down the driving inputs that determine CO_2 outputs. The study found that the CO_2 emissions embodied in Chinese exports increased from 1.7 billion tons to 3.1 billion tons from 2002 to 2008 and that this change was most strongly driven by the shift in export composition to include more metal products (steel sheets, steel slab, etc.). The paper discusses the implications of this research for both domestic and international policy, including the need for the Chinese government to disincentivize carbon-intensive products and the responsibility of developed countries to transfer advanced technologies to developing ones to help them reduce the emission intensity of manufacturing.

Xu, M., Li, R., Crittenden, J.C. & Chen, Y.S. (2011). CO2 emissions embodied in China's exports from 2002 to 2008: a structural decomposition analysis. Energy Policy 2011, 39 (11), 7381-7388.

Color and job loyalty

Minority professionals have historically been underrepresented in major environmental organizations. A long-term study by SNRE Professor **Dorceta Taylor,** published in *Environmental Practice*, parses apart the stereotype that the field has been slow to diversify because minorities are generally disinterested in environmental careers. Taylor's study interviewed 265 professionals in mainstream, governmental and environmental justice organizations in 2004-05 and used regression analysis to test the statistical relatedness of race, gender and other personal characteristics to job tenure, starting salary and current salary. "Not only are minorities staying in these organizations, but they're really loyal to the first organizations that hire them," she said. Fifty-eight percent of minorities interviewed had been in their current job for more than 10 years, compared with 39 percent of whites with more than a decade of tenure.

Taylor, D. (2011). Racial and Gender Differences in Job Mobility and Wages of Employees in Environmental Organizations. Environmental Practice, 13, pp 370-385.

Plugging in L.A. ports

Ports around the world are considering replacing diesel cargo-handling equipment with electric models as a way to reduce greenhouse gas emissions. A study by SNRE Assistant Professor **Josh Newell** and Jae Kim and Mansour Rahimi of the University of Southern California provides a comparative life cycle assessment of yard tractors at the Port of Los Angeles—a key case study because of the City of Los Angeles' aggressive plan to reduce greenhouse gas emissions 35 percent below 1990 levels by 2030. The research, published in *Sustainable Transportation*, indicates that shifting to electric power would lead to a significant reduction in life cycle emissions on a per container basis. However, the

sheer projected expansion in the number of containers moving through the port will overwhelm this efficiency measure. As a result, this urban port, the country's largest in terms of volume, will not be able to reach its legislated 2030 target. The study suggests that we need to reduce overall consumption levels if we are to meet such greenhouse gas emissions targets.

Kim, J., Rahimi, M., & Newell, J. (2012). Life-Cycle Emissions from Port Electrification: A Case Study of Cargo Handling Tractors at the Port of Los Angeles. International Journal of Sustainable Transportation. 6:6:321-337.

Exploring the 'culture of conservation'

In an article in *Conservation Biology*, SNRE Associate Professor **Rebecca Hardin** practices the kind of self-examination she preaches, scrutinizing her personal "culture of conservation" and its foundation in her exposure to religion, media and Appalachian landscapes during formative years. Hardin, an anthropologist, sees the growing need for professionals to be aware of the diverse aesthetic, technical and ideological positions that define conservation cultures. Though this reflexive look at identity "traditionally has been avoided in mainstream conservation discourse…it might find its place in the practices of a highly media-savvy next generation of conservationists," she writes. "This reaching inward could mean conservationists will forge better outreach and may even transform conservation processes into more institutionally complex, innovative and enduring solutions to environmental challenges." Such reflexivity can illuminate fault lines within a single nation, while revealing new forms of transnational connection. Hardin considers the example of intentional "off the grid" communities in rural Appalachia, comparing them to communities of forest residents in equatorial Africa. These respective groups are not yet connected with one another. However, they could become so if future conservationists use technological innovations in communication and management to transcend this era's divides between "north" and "south," or "westerners" and others.

Hardin, R. (2011). Competing Cultures of Conservation. Invited Essay for the 25th Anniversary Special Issue of Conservation Biology. Volume 25, No. 6: 1098-1102.

AMBIENTALISTAS:
HISPANICS IN CONGRESS VOTE PRO-ENVIRONMENT

The 112th Congress matches the 111th as including the largest number of Hispanic representatives in U.S. history with 31 members: two in the Senate and 29 in the House. According to recent research published by SNRE doctoral student **Kerry Ard** and Professor **Paul Mohai**, this diversification may bode very well for pro-environmental policy-making.

The study, "Hispanics and Environmental Voting in the U.S. Congress," published in the December journal *Environmental Practice*, examined the records of Hispanic members of the House from 1995 to 2006 using multivariate-regression models. Their work found that Hispanics were significantly more likely to cast pro-environment votes than their white colleagues, though slightly less "green" than African-American members of Congress. Their study was the first study to look at Hispanic congressional members' voting behavior—an important gap to fill given that Hispanics recently became the largest minority in the United States. "The way I translate this is, if you want a more pro-environmental Congress, elect more Hispanic and African American members," Mohai said.

The study's results are also significant given the arbitrary but widespread belief that people of color are not as concerned about the environment as white Americans. This conventional wisdom has been so strong that for a long time no one bothered to look at the data, Mohai said. A leading scholar in the field of Environmental Justice, Mohai has made a career out of statistically documenting how the unequal exposure to environmental hazards, such as polluting industry, is often drawn along racial lines.

"I have wondered for some time if it's actually been intentional to perpetuate that conventional wisdom to persuade people of color to accept environmental conditions in their communities," he said. His research has shown that minority neighborhoods are those most often subjected to the unjust choice between exposure to environmental toxins and jobs. He suspected that Congress members representing minority constituents living in polluted environments would be more, not less, likely to vote pro-environmentally.

When they looked at the data, Ard and Mohai found just that. Environmental voting scores assigned by the League of Conservation Voters (LCV) fluctuated around 80 percent for African-American members of Congress; 60 to 70 percent for Hispanics; and 40 percent for whites. The LCV score is based on votes concerning air and water pollution, hazardous waste, national parks and forests and climate change legislation, among other topics. The pro-environment voting behavior broken down by race seemed to mirror public opinion polls, including one by ABC News that found about 59 percent of Hispanics polled said they thought the government should be doing "much more" about global warming, compared with 66 percent of African Americans and 42 percent of whites.

Ard, K. & Mohai P. (2011). Hispanics and Environmental Voting in the US Congress. Environmental Practice, 13, pp 302-313.

– ALLIE GOLDSTEIN

ON A MISSION

Growing up at Six Mile and Livernois in Detroit in the 1970s, Marie Lynn Miranda saw firsthand how economic sustainability is linked to health. As Detroit's fortunes changed, so did the neighborhood that her large, boisterous immigrant family called home. Urban blight became more common, and neighborhoods changed rapidly with shifting economic fortunes. The experience left a lasting impression and became the impetus for her research into children's health.

Miranda returns home to lead SNRE as dean

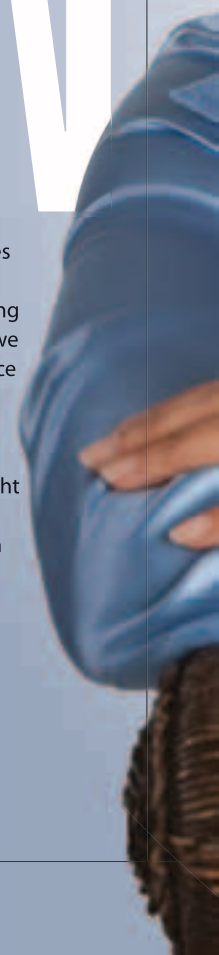
BY **KEVIN MERRILL**

"Children are exquisitely vulnerable to environmental exposures—whether we are talking about contaminants, green spaces or neighborhood quality," said Dean Miranda, one of the nation's leading researchers on children's environmental health. "The more broadly we define the environment, the more likely we are to discover the science and policies to foster protective communities for all children."

Her research and administrative accomplishments, plus her enthusiasm in tackling challenges, were enough to convince University of Michigan Provost Phil Hanlon that Miranda was the right person to lead the School of Natural Resources and Environment.

"She's an outstanding teacher and accomplished researcher. In her engagement with complex questions of environmental health, she has shown a keen ability to bring integrated, interdisciplinary perspectives to bear on pressing policy concerns," Hanlon said in announcing her appointment as dean.

In accepting the post, Dean Miranda returned to her native state after spending her academic career in North Carolina at Duke



MIRANDA AT A GLANCE

Birthplace: Columbus, Ohio ("Let's not even go there," Miranda said.)

Age: 40-something

Education: Bachelor of Arts, with a double major in Mathematics and Economics, from Duke University in 1985; and a Master of Arts and a Ph.D., both in Economics, from Harvard University in 1988 and 1990, respectively

First job: computer operator at the University of Detroit computer center

Family: Husband, Chris Geron, a senior scientist in the U.S. Environmental Protection Agency's Office of Research and Development, National Risk Management Laboratory, and a graduate of Ohio State University ("He has to wear Michigan apparel if he wants a football ticket," Miranda said); children: son, Thompson, and daughters Mariel and Viviana

Countries where Miranda has worked: Nepal, Indonesia, Malaysia, Honduras, Costa Rica, Sweden (where she got married!), Kenya, Tanzania, Uganda, and the United States

On the picture of Dr. Martin Luther King, Jr. in her office: "That photo exhorts me every day to fight the good fight. Real and meaningful change comes with unrelenting commitment and effort."

READ MORE:
snre.umich.edu/miranda

ON A MISSION

Our deep bond with SNRE and the University of Michigan arises from our shared commitment to doing nothing less than changing the world.

University, from where she earned a bachelor of arts in mathematics and economics in 1985. After earning master's and doctoral degrees from Harvard, she joined Duke's Sanford Institute of Public Policy in 1990 as an assistant professor. In 1995, she transferred her faculty appointment to the Nicholas School of the Environment, where she would teach and mentor for the next 16 years before coming to SNRE.

While at Duke, she also was a faculty member in the Department of Pediatrics within Duke Medicine; at Michigan, she has an appointment as a professor in the Department of Pediatrics and Communicable Diseases at C.S. Mott Children's Hospital.

She has devoted her professional career to research directed at improving the health status of disadvantaged populations, particularly children. Her research uses data-driven environmental mapping and analysis to foster more protective environments for children. Her research goals go well beyond traditional academic output, and extend to outreach in the community and working to effect policy change.

She is the founding director of the Children's Environmental Health Initiative (CEHI), a research, education and outreach program that fosters environments where all people can prosper, and which moved with her to SNRE and is now housed in the Dana Building (*see related story, opposite page*). She has held the director post since 1999.

CEHI's peer-reviewed work is cited widely, including in the U.S. Environmental Protection Agency's current integrated science assessment on revisions to the National Ambient Air Quality Standard for lead. CEHI also works closely with a wide range of organizations and non-profits in addressing children's environmental health issues in the community. In 2008, it received the EPA's Environmental Justice Achievement Award.

In her first four months as SNRE dean, she has spent a lot of time with current students and alumni, as well as faculty and staff, collecting ideas and opinions about how to strengthen SNRE's curriculum and research portfolio, while also connecting directly with communities. "One theme that has consistently emerged in these conversations is the deep connection that the entire SNRE community feels to the school's mission," she said. "The stories of how people become connected to SNRE are rich and highly varied, but share a common theme. Our deep bond with SNRE and the University of Michigan arises from our shared commitment to doing nothing less than changing the world."

She also has hired two new assistant professors, finalized the fiscal year 2013 budget, refocused the school's student-recruitment efforts, and given numerous lectures across campus, including the 11th Annual Peter M. Wege Lecture on Sustainability. And she's even had time to sit for an interview with editors of *The Compostable Times*, the SNRE student newspaper, where she talked about her continuing use of the word y'all.

"Y'all is not used ubiquitously for the second person plural. It is always meant to have a certain amount of affection and warmth to it," Dean Miranda said. "I brought back with me the impact of all those years living in the South. People said I would get rid of the 'y'all' as soon as I got here, but I am sticking to it."

Photo courtesy of CEHI

ABOVE: DEAN MIRANDA DONNED A FOAM WOLVERINE PAW TO LEAD THE AUDIENCE IN AN EXULTED VERSION OF "HAIL TO THE VICTORS" DURING HER WEGE LECTURE IN MARCH. **RIGHT**: ADVOCATING FOR CHILDREN'S LITERACY IS PART OF THE OUTREACH MISSION OF CEHI.

PRECEEDING PAGE: MIRANDA PORTRAINT BY MARTIN VLOET, U-M PHOTO SERVICES

MEMBERS OF THE CEHI COMMUNITY ASSESSMENT PROJECT TEAM COLLECT DATA ON THE BUILT-ENVIRONMENT IN CENTRAL DURHAM, N.C.

CEHI JOINS U-M, TOO

When Marie Lynn Miranda joined SNRE, the school also gained a new science institute: the Children's Environmental Health Initiative (CEHI). CEHI is a research, education and outreach program committed to fostering environments where all people can prosper. Miranda founded it in 1999 while at Duke University.

CEHI's peer-reviewed work is cited widely, including in the U.S. Environmental Protection Agency's current integrated science assessment on revisions to the National Ambient Air-Quality Standard for lead. CEHI also works closely with a range of community organizations in addressing children's environmental health issues. In 2008, it received the EPA's Environmental Justice Achievement Award.

In November, a research and outreach effort within CEHI called the Center for Geospatial Medicine was part of a team that received a $6.2 million grant to study diabetes. Part of that work will be carried out in the Dana Building, now home to CEHI.

The Bristol-Myers Squibb Foundation made the grant as part of its national diabetes initiative, "Together on Diabetes." The project aims to improve the health and quality of life for people living with Type 2 diabetes. Other partners on the grant are the Duke University Medical Center and the Durham County Health Department. The project focuses on residents of North Carolina's Durham County, home to Duke.

"The Center for Geospatial Medicine will be developing geospatial informatics tools to improve the design and delivery of treatment approaches for persons with T2DM. We are grateful to the Bristol-Myers Squibb Foundation for its belief in our work," Miranda said when the grant was announced.

Through its 15 employees, ranging from statisticians and database programmers to environmental health scientists, along with multiple undergraduate and graduate student research assistants, CEHI manages multiple projects focused on the special vulnerabilities facing children. It does this by incorporating spatial analysis and field-based sampling into research on children's environmental health.

In doing so, CEHI maintains a commitment to social justice. As a result, much of its work is focused on low-income and minority communities. CEHI's long-term vision is to forge a new approach to addressing children's environmental health issues.

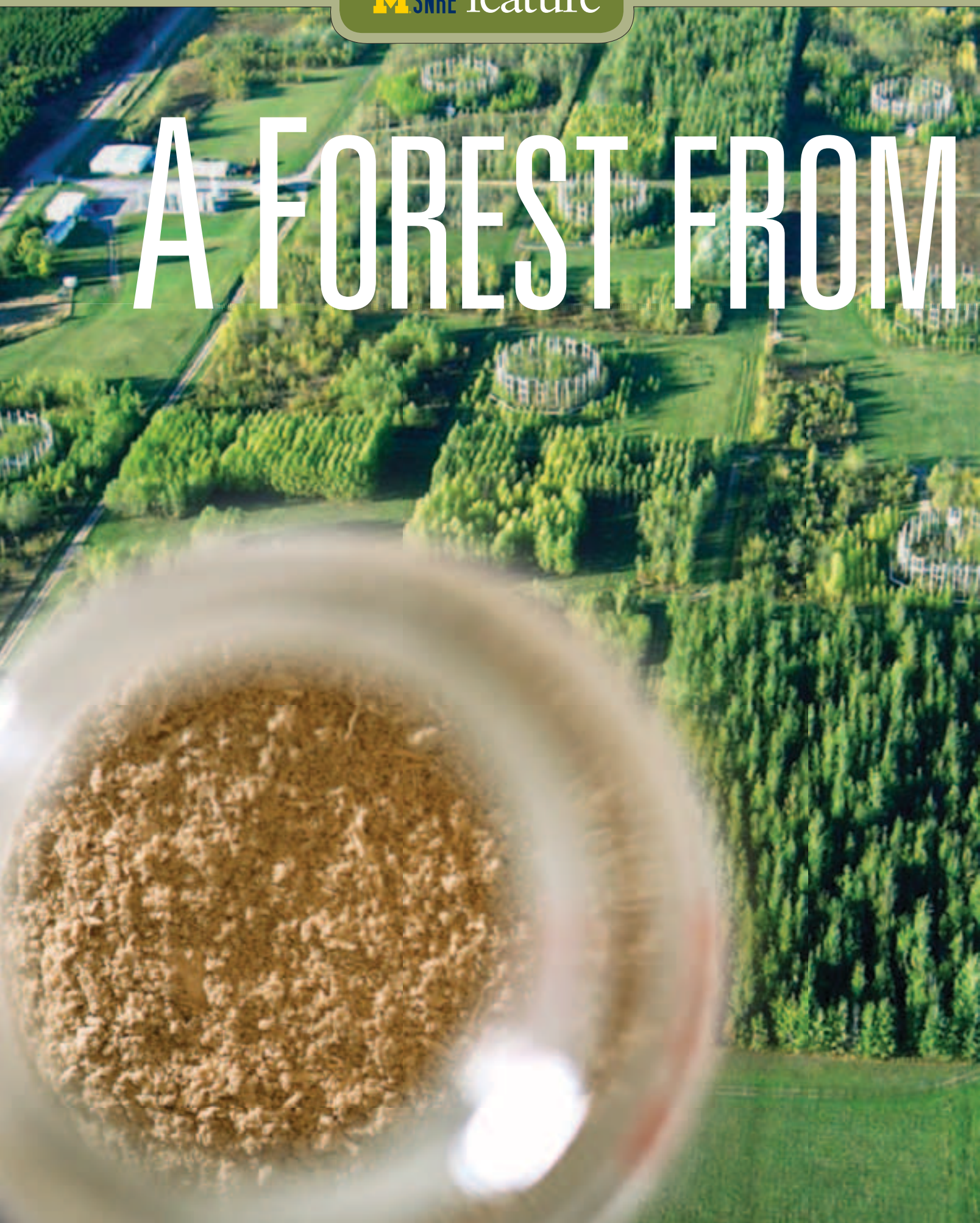
– KEVIN MERRILL

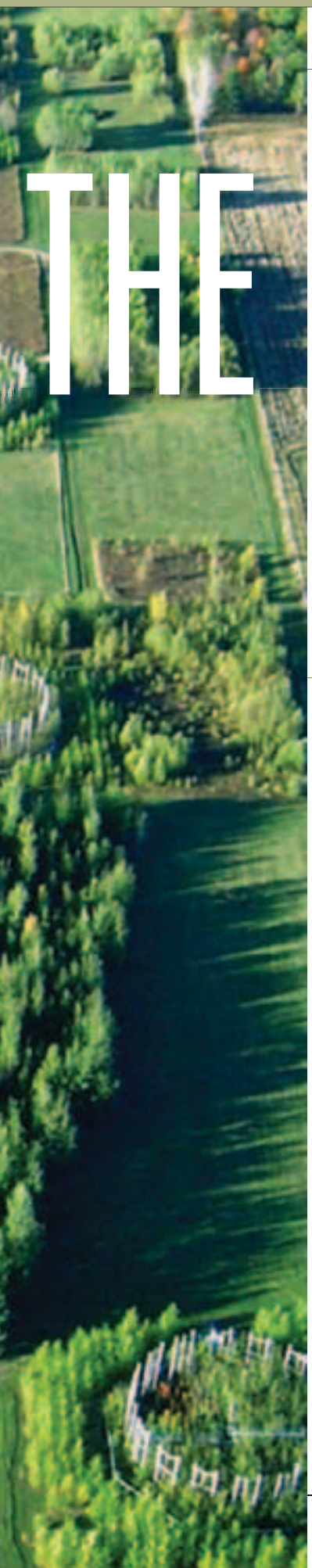
OTHER AFFILIATIONS

In addition to CEHI, other University of Michigan centers and institutes directly under or affiliated with SNRE include:

- Center for Sustainable Systems
- Cooperative Institute for Limnology and Ecosystems Research (CILER)
- Ecosystem Management Initiative
- Environmental Justice Initiative
- Erb Institute for Global Sustainable Enterprise
- Graham Environmental Sustainability Institute
- Institute for Fisheries Research
- International Forestry Resources and Institutions (IFRI) research network
- Michigan Sea Grant
- Multicultural Environmental Leadership Development Initiative

A Forest From





THE FUTURE

BY **ALLIE GOLDSTEIN (M.S. '13)**

Don Zak Gets an Ecologist's Sneak Peek into a Climate-Changed Future

Photo by Dave Brenner

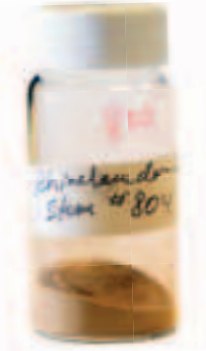
In a dozen circular 30-meter plots in northern Wisconsin, scientists grew a time machine.

The Rhinelander experimental forest, which SNRE Professor Don Zak and his colleagues have studied for the past 12 years, is quite literally a forest of the future. On the site, about a hundred miles south of Lake Superior, stands of aspen, paper birch and sugar maple were exposed to the levels of carbon dioxide and ozone predicted for the end of this century, giving researchers a glimpse into how temperate forests could function circa 2100.

Their findings, which Zak presented Feb. 3 as part of SNRE's Conservation Ecology Seminar Series and were published this fall in *Ecology Letters* and *Global Change Biology*, revealed "what other people didn't expect to happen but what we had been arguing for all along," said Zak, the Burton V. Barnes Collegiate Professor at SNRE.

What Zak and his colleagues discovered at Rhinelander contradicted previous predictions among some scientists; namely, that enhanced levels of ozone (O_3) would cripple forests and that any growth spurts associated with enhanced atmospheric carbon dioxide (CO_2) would be extremely short-lived. Instead, net primary production—essentially, how much biomass the forest creates out of the energy of the sun—was 26 percent greater in Rhinelander's carbon dioxide-exposed plots over the duration of the study, which lasted from 1997 to 2008.

At first glance, these findings seem reassuring in terms of forests' ability to mitigate the effects of climate change. Because biomass stores carbon, a forest that increases net primary production in response to increased CO_2 in the atmosphere is essentially slurping up excess human-derived emissions and using them for growth. But Zak stressed that the fact that net primary production increased over the decade-long experiment



TREE STEM SAMPLES ARE GROUND INTO A FINE POWDER, WHICH IS ANALYZED FOR CARBON, NITROGEN AND STABLE ISOTOPES. THE SAMPLES COME FROM THE LONGEST-RUNNING EXPERIMENTAL MANIPULATION OF ATMOSPHERIC CO_2 and O_3 IN ANY FOREST ECOSYSTEM WORLD WIDE.

OPPOSITE: AN AERIAL VIEW OF THE RHINELANDER SITE

FOREST FROM THE FUTURE

does not mean that the ultimate CO_2 uptake capacity of the forest would be greater. The trees in the elevated CO_2 plots were bigger than those in the control plots, most likely because their growth was accelerated, not because of a change in what would be their ultimate size, Zak said.

"It's just as if this forest was older than it actually is," he said of Rhinelander results.

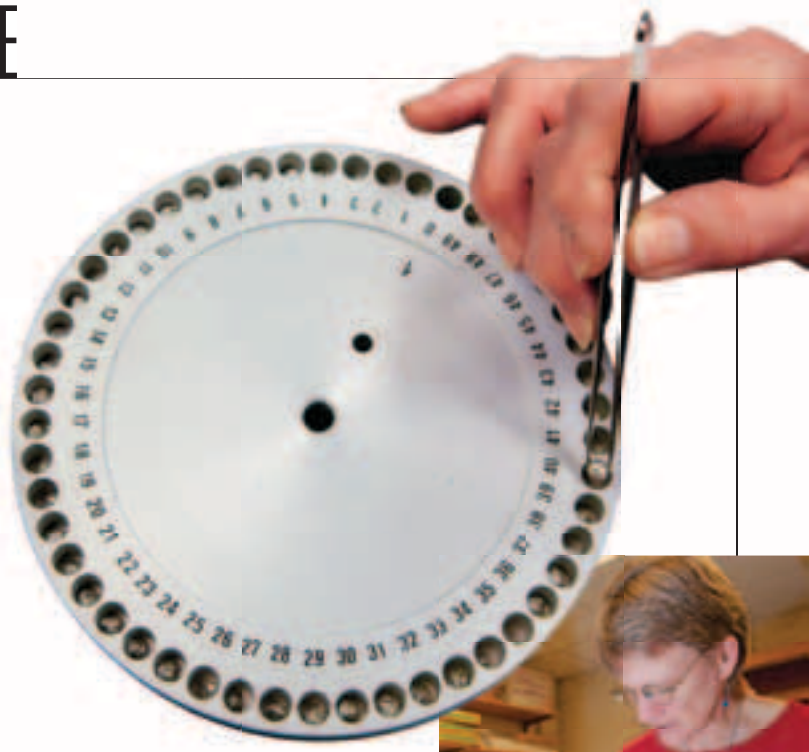
I asked Zak if this was good or bad news. "Good and bad are human attributions," he said. Fast-forwarded forests might be "a boon to the pulp and paper industry," but their long-term potential for carbon storage isn't promising. When forests die, decomposition releases all of the carbon the trees once stored back into the atmosphere.

The Rhinelander forest was harvested in 2009, allowing researchers to weigh the above-ground portion of the trees as well as fine and coarse root biomass, which counts towards net primary production. The harvest marked the end of the longest study of CO_2 and O_3 in forest communities ever conducted. The harvest was also the teardown of an elaborate experimental set-up: From the air, Rhinelander experimental forest looked like a village of open, circular dwellings. Each plot of trees was circled by vertical ventpipes and had its own weather station in the middle. The pipes released prescribed levels of CO_2 and O_3 according to a computer-controlled system that used feedback signals to update gas concentrations every second. The technology is called FACE, an acronym for Free-Air Carbon Dioxide Enhancement.

Since the experimental plots were not confined, the trees were exposed to ambient environmental conditions—the only differences were that their atmosphere was either turned up to 550 parts per million CO_2 or pumped with O_3—or both. 550 ppm is the atmospheric CO_2 concentration predicted for the end of this century. World averages are currently at about 390 ppm, up from 275 ppm before the Industrial Revolution.

Since plants uptake carbon dioxide for growth, scientists have long predicted a "fertilizing effect" on forests as atmospheric CO_2 levels increase. Before the Rhinelander experiment, most thought that growth would be enhanced for just a few years before trees ran out of a critical ingredient: nitrogen. The 12-year growth spurt that Zak and his colleagues observed can be explained by the fact that the limiting nutrient turned out to be not so immediately limiting. At Rhinelander, trees exposed to 550 ppm CO_2 put out more fine roots, allowing them to forage for more nitrogen in the soil. With more growth, they also produced more leaves and roots, which in turn created more nitrogen-rich leaf litter that decomposed faster

The Rhinelander plots exposed to enhanced levels of O_3 did not grow more or faster than the control plots, but they did avoid the crash that scientists had forecasted. Plots pumped with ground-level O_3 did exhibit stilted production at first, but soon, more ozone-tolerant species, including paper birch and different aspens, began to compensate for



UNDER A MICROSCOPE

PATRICIA MICKS, A RESEARCH LABORATORY TECHNICIAN WORKING WITH PROFESSOR DON ZAK, PREPARES MILLED WOOD SAMPLES FOR STABLE ISOTOPE ANALYSIS. SHE IS PLACING THE SAMPLES INTO AUTOSAMPLER TRAYS, WHICH WILL DELIVER THE SAMPLES INTO A MASS SPECTROMETER. BELOW, THE IDENTITY OF THE SAMPLE IS CHECKED BEFORE ANALYSIS TO ENSURE VALID RESULTS. THE WORK IS CONDUCTED IN THE TERRESTRIAL ECOLOGY STABLE ISOTOPE LABORATORY INSIDE THE DANA BUILDING.

Photos by Dave Brenner

READ MORE ON RHINELANDER:
aspenface.mtu.edu

Photos courtesy of Don Zak

their less-fit neighbors. After 12 years, the elevated O_3 plots and the control plots had the same net primary production due to compensatory growth by O_3-tolerant individuals, meaning the plots ultimately stored the same amount of carbon. Computer models assuming a negative plant-growth response to rising O_3 predict an increase in the pace of climate warming, which is inconsistent with the results of the Rhinelander experiment.

One of the study's most significant implications for natural resource management is, therefore, that biodiversity is an essential component of ecosystem response to climate change. Had the Rhinelander plots been composed of a single tree species, the mini-ecosystems might have indeed crashed under increased O_3. With the presence of several naturally occurring species and aspen types, O_3-tolerant individuals were able to grow faster and store more carbon than they otherwise would have, taking up the carbon-storing slack for their less O_3-tolerant neighbors.

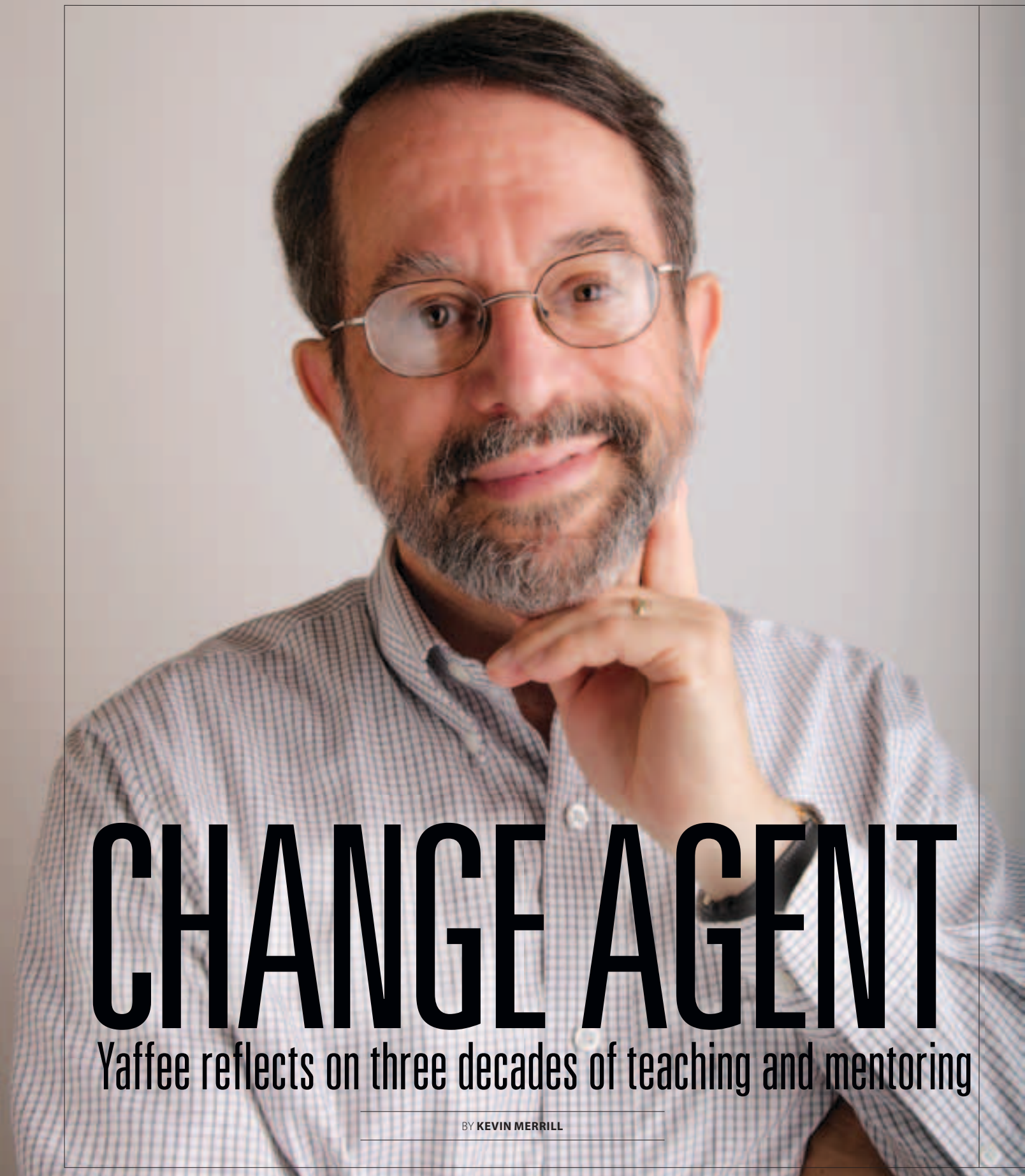
"We don't understand the extent to which biodiversity influences ecosystem processes in all forests," Zak said, and it is this uncertainty that makes biodiversity essential. Without clear knowledge as to which species might thrive in the atmosphere of 2100, a healthy mix is our best buffer against negative consequences. This logic is intuitive, but the Rhinelander experiment was the first to demonstrate the importance of tree species diversity under climate change conditions so plainly.

Since Rhinelander's harvest, the "forest of the future" is no more. Twelve years of time travel was enough. The next experiment, according to Zak, would have been growing the forest to maturity—but we don't need FACE technology to do that.

"That experiment happens in real time," Zak said. CO_2 levels are on the rise at a rate of about 2 ppm per year, so to figure out what happens to forests growing in an altered atmosphere over the long term, all we have to do is wait and watch. Zak came to SNRE in 1988 as an assistant professor. He became a full professor in 2000; in 2004, he became a full professor with a dual appointment in the Department of Ecology and Evolutionary Biology in the College of Literature, Science, and the Arts. In 2009, he was awarded the Francis Clark Lectureship: Frontiers in Soil Biology—awarded by the Soil Science Society of America for research excellence in soil microbiology and biochemistry.

The results of Zak's study were published in October in *Ecology Letters* and in March in *Global Change Biology*; Kurt Pregitzer of the University of Idaho, Mark Kubiske of the US Forest Service and Andrew Burton of Michigan Technological University were co-authors. The research was funded with grants from the U.S. Department of Energy and the US Forest Service.

STUDENTS AND OTHER RESEARCHERS GATHER DATA DURING THE ASPEN FACE EXPERIMENT, A MULTIDISCIPLINARY STUDY. THE PROJECT CONTINUES AS THE NORTHERN FOREST ECOSYSTEM EXPERIMENT (NFEE), WITH FUNDING FROM THE US FOREST SERVICE.



CHANGE AGENT

Yaffee reflects on three decades of teaching and mentoring

BY **KEVIN MERRILL**

Nearly 43 years ago, Steven L. Yaffee came to the University of Michigan as a college freshman. Having been inspired by one of the classic texts of environmental awakening, his goal was simple: create positive change for the environment.

Yaffee would earn two degrees from the School of Natural Resources and Environment, teach at Harvard, write four books and consult with some of the largest philanthropic organizations in America. This fall, he'll achieve a milestone with even greater significance: beginning his fourth decade as teacher and mentor at his alma mater. And it is in that role that Yaffee, reflecting on those decades of shaping generations of environmental leaders, finds his greatest professional satisfaction.

"What I am most proud of has been my impact on the way a set of students think about politics and public policy, how they are able to craft strategy to change policy outcomes, and how they're able to negotiate in public decision-making processes," he said. "My biggest impact comes from having influenced a set of alumni, who are out across the landscape acting as social change agents."

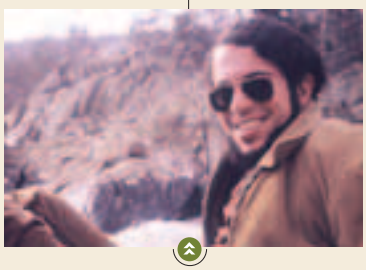
In fact, through the many courses taught and master's projects advised, probably no current faculty member has had direct contact with more graduate students or alumni than Yaffee. He's also the only faculty member to have received the student-voted SNRE Outstanding Faculty Teaching Award three times (1999, 2009 and 2011), a State of Michigan Excellence in Teaching award and the University-wide Rackham Master's Mentor Award.

His research and teaching draw on his substantial on-the-ground work with non-profit organizations and charitable foundations. The broad focus of that work has been on landscape-scale conservation and ecosystem management. In his words, "How do we get people representing different interests in a complicated landscape to sit down together and find ways forward? And how do we get management agencies and non-profit groups to be more strategic and effective in evaluating and adapting their strategies?"

His first exposure to the environment came from behind the handlebars of his three-speed bike as he explored the rapidly-urbanizing metropolitan areas around Washington D.C., his birthplace. Boy Scout camping trips would immerse him further. But neither he nor his parents had an overriding interest in the environment. But that changed for him one spring day, when he was home sick from school and looking for activities to free him from boredom. His mother brought books home from the library, one of which was Rachel Carson's *Silent Spring*.

"I read it, and that was my epiphany," Yaffee said. "I was outraged by Carson's image of a pesticide-laden toxic earth, and had to find a way to do something about it."

Looking for an undergraduate degree in conservation—this was before the first Earth Day and the rise of the modern environmental movement—Yaffee was introduced to the School of Natural Resources (as it was then known) by chance. A high school friend was applying for admission to U-M, and in casually reviewing his friend's application, Yaffee noticed that U-M had a natural resources school.



TWENTY-YEAR-OLD STEVE YAFFEE IN THE SUMMER BETWEEN HIS B.S. AND M.S. PROGRAMS AT SNR, AS IT WAS THEN CALLED.

"It was not entirely random, but I applied and was accepted and it was literally transformative for me," he said. "My life would be completely different if I hadn't come here."

He would go on to earn bachelor's ('72) and master's ('73) degrees from SNRE, before heading first to a research position at the Oak Ridge National Laboratory and then to the Massachusetts Institute of Technology, where he earned a Ph.D. in Environmental Policy and Planning in 1979. He then joined the faculty of the Harvard Kennedy School of Government as an assistant professor of city and regional planning.

But when a faculty position opened at SNRE in 1982, he was asked to apply. He was offered the job and—four books and many teaching awards later—he is set to begin his 31st year of teaching this fall.

In 2000, he founded the Ecosystem Management Initiative (EMI) at SNRE to promote sustainable natural resource management. EMI has hosted Yaffee's work examining the challenges and successes of real-world places that have tried an ecosystem-based management approach. It's also the institute through which the school manages the Wyss Scholars for the American West and the Doris Duke Conservation Fellows programs, both of which Yaffee directs. These fellowship programs have brought more than $3 million in master's student support to SNRE and have recognized more than 100 SNRE students as future leaders in non-profit and public sector conservation.

Stewards sat down with Yaffee the day before the "Conservation Forward: Environmental Leadership in Action" symposium in March. The symposium featured nearly 20 SNRE alumni, nearly all of whom were Duke Fellows as SNRE graduate students. Yaffee served as the Doris Duke Conservation Fellows program director during its entire 13-year run at SNRE.

Stewards: You spent four years in this building as a student. Which teachers do you remember most?

Steve Yaffee: My undergraduate advisor was Bill Stapp. He was a larger-than-life figure. He is the father of environmental education and was an incredibly nice man. Jonathan Bulkley opened my eyes to the possibility of using public policy to cause social change. I took one of the first courses he taught, and it shifted my emphasis from aquatic ecology and wildlife management to policy. Others were Gary Fowler and Ross Tocher: these were all people who were incredibly enthusiastic, energetically committed to teaching and fully engaged in the community. And that's what drew me to them. They were engaged.

Yaffee portrait by Dave Brenner

CHANGE AGENT YAFFEE REFLECTS

Stewards: How did the unrest on the U-M campus during this period affect you?

Yaffee: It was an incredible period of social activism, and that really frames a lot of what I've done since then. I'm an academic because I'm interested in helping to promote environmental change, not because I set out to be an academic. Career wise, I've gone through different ways to cause social change, and finally came to the conclusion that my strength was in helping to influence the skill sets of students who go out and act as social change agents. And that's what our alumni are doing all over the country.

Stewards: In what significant ways has the school changed in the past 30 years since you joined the faculty?

Yaffee: I'd say one of the biggest changes is the increased significance of the school and the issues that we work on to the university. When I joined the faculty in 1982, the state of Michigan was in terrible financial shape. SNR was targeted to receive a 25 percent budget cut, and I was named to the school-wide Transition Team to plan for the cut.

Today, we are a much more significant element of the university. That has come partly because of dual-degree programs that have made us relevant to other units; but also in the increased recognition across campus that stewardship and sustainability are critical challenges. As SNRE has broadened to embrace all strategies for achieving sustainable societies—from biodiversity conservation to urban design to better technologies—its relevance to the campus and the broader world has made it a much more powerful player.

Another big change has come from a shift in our students' focus. Today, most are master's students headed toward professional careers, not academic research. Helping them achieve their goals requires us to rethink our curricula and how we teach.

Today's world is also different than it was in 1982. We are increasingly polarized and fragmented, and people are distracted and overwhelmed. We need professionals who can help others to bridge disparate interests and information in order to find integrative solutions to problems. There is a huge opportunity for our students to occupy what I call the "strategic middle," and if you look at many of our alums, I think that's what they do and why they're successful.

Stewards: You do a lot of work outside the school helping environmental foundations and NGOs be more strategic. How does that work affect your teaching and research?

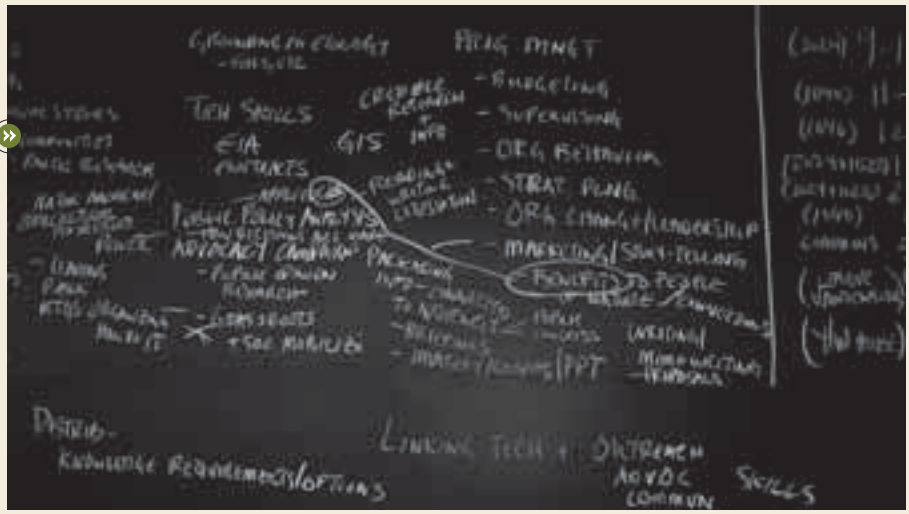
Yaffee: I got into more professional practice about 10 years ago by working with foundations like the Packard Foundation and NGOs such as the Sonoran Institute. I'm currently working with the Gordon and Betty Moore Foundation on their Marine Conservation Initiative. And what I do with them is help them be more strategic about their investments, largely by helping them develop ways to measure and communicate their success. And that comes from understanding the logic of their program very clearly, and then figuring out indicators for measuring success.

I've worked in about 25 places across North America and the Caribbean to help put into place these kinds of systems for assessing progress. Now, how does that affect what we do here? I think I have gotten better at teaching process skills, helping students to understand how to design and facilitate planning processes that are informed yet effective at managing and motivating people. I think it also has made me much more analytic and evaluative about what we do as a school, viewing our teaching, research and outreach programs as strategies whose impact can be assessed and adapted.

Stewards: Your political analysis and negotiation courses are some of the most popular courses at SNRE. Why is that?

Yaffee: The way both of those courses are taught is as close as you get to experiential education in the classroom. The political analysis course uses real-world case studies. What we do in class is start with a decision-maker's choice and then use frameworks for analysis that help disaggregate what is going on and build strategy to cause change.

In the negotiation course that I co-teach with Julia, half the sessions are three-hour-long negotiations. And then in the subsequent class, we debrief what



YAFFEE'S INTERACTIVE TEACHING STYLE RELIES HEAVILY ON DRAWING OUT AND ORGANIZING INFORMATION AND IDEAS FROM STUDENT DISCUSSION. BY VISUALLY APPLYING FRAMEWORKS, HE HELPS STUDENTS DEVELOP MORE ANALYTIC MODES OF THINKING. HIS STYLE ALSO LEAVES BEHIND ARTISTIC BLACKBOARDS COVERED WITH THE IDEAS DEVELOPED THROUGH CLASS DISCUSSION, AS THIS ONE CREATED AT THE CONSERVATION FORWARD SYMPOSIUM DEMONSTRATES.

YAFFEE AND JULIA WONDOLLECK MET AS FELLOW MIT STUDENTS. MARRIED IN 1983, THEY HAVE BEEN RESEARCH AND TEACHING COLLEAGUES AT SNRE SINCE SHE JOINED SNRE AS A POST-DOCTORAL FELLOW IN 1983 AND SUBSEQUENTLY WAS HIRED AS A FACULTY MEMBER IN 1987.

happened and draw lessons from the students' negotiations. Students like these courses because they teach them to be more skillful and intuitive about professional practice. And they are "sticky" because the teaching method simulates real-world experience. It is their need to understand and act on a situation that motivates our exploration of theory and concepts, not the other way around. Oh, and we get a chance to laugh together. Having fun together helps create a learning environment that motivates our students to sit through three-hour-long late afternoon classes. Humor can be a great lubricant of human relations.

Stewards: You have been an advocate of master's projects and skills modules. Why are these important and what do they mean to the students and to the school?

Yaffee: Adopting master's projects as the capstone piece of our curriculum was an important step forward in professionalizing our curriculum. In my first teaching job at Harvard, we did team-based projects for real-world clients, and I brought the concept to SNRE when I joined the faculty. SNRE has sponsored more than 250 projects since then, and I'm pleased that alumni rank the master's project experience as the most valuable piece of their SNRE education.

For the school, projects are a way to "fast forward" students' impact on society. For the students, projects enable them to employ their skills on real-world problems. If we believe that this is a mission-driven school and the mission is to cause environmental change, then we have to equip students with the best set of professional skills to cause that change. Projects and skills modules are ways to build an understanding of the real world and how to function in it, and in doing so, enhance the school's ability to cause change.

Stewards: Your faculty colleague, Julia Wondolleck, is also your wife. Do the two of you talk shop when you get home or does it stay at the Dana building?

Yaffee: Our life is one big smush of work. So we talk shop all the time and we work all the time except when we're traveling. Is that good? I wouldn't prescribe it for any couple. Neither of us would say it's ideal.

When we first came to Ann Arbor, we tried to keep our worlds separate, but it became artificial. So we finally gave up trying to keep apart and that leads to this one big smush of activities.

The flipside is we probably understand each other and spend more time with each other than most couples. We teach courses together and students find those courses to be fairly seamless.

If we believe that this is a mission-driven school and the mission is to cause environmental change, then we have to equip students with the best set of professional skills to cause that change.

We know where the other is going to go and that makes collaborative teaching and research very productive. But it's not a model I would suggest to others.

Stewards: Most of your writing draws from research in the American West but you're here in Ann Arbor. What's the fascination with the American West?

Yaffee: Well, I'm interested a lot in public lands and biodiversity conservation. Half the American landscape is managed by public agencies in our collective interest, and much of that land is in the West. More fundamentally, there is magic in the Western landscape that I don't find elsewhere.

Also, I married a fourth-generation Californian with deep roots in the West, so there's been significant pressure to move westward for a long time. But we have stayed in Ann Arbor for two reasons. First, Ann Arbor is this little bubble of wonderfulness and it has been a great place to raise our two daughters, who collectively have received four degrees from U-M.

The other reason is that SNRE is a pretty unusual place. As a faculty, we may be our harshest critic at times but there just aren't many places like SNRE. There's a healthy balance between natural and social science that does not exist in many peer schools. And we aspire to focus on professional education even when we don't quite know how to do that. And we have a sense of community that comes from our collective mission, even when the individual incentives in academe can undercut community.

So this is a pretty unusual place. That's why we're here and why we've stayed.

Stewards: You play the keyboards and were among a group of faculty in 1985 who founded the Ecotones. Will we ever see an iTunes download from the SNRE faculty band, or is the Winter Solstice party a one-time shot every year?

Yaffee: It's just the Solstice gig every year. Jonathan Bulkley, Burt Barnes and I started playing background music at the SNRE Christmas party in the mid-80s. We picked up a few grad students over the years and if they were talented, we tried to keep them from graduating, with limited success. The Ecotones really took off when we started recruiting faculty based on their musical talent rather than their research or teaching abilities!

It's a lot of fun, but more than that, it represents SNRE community at its best. Ten really different people who come together to be creative and produce music out of what could be noise. Not a bad metaphor for collaborative environmental problem-solving. The world could use more music!

classnotes

TRASH TO TREASURE, indigenously

Alumna **Amanda Garratt**, in collaboration with the nonprofit Alianza Arkana, has won the Peruvian Ministry of Environment's 2011 National Prize of Environmental Citizenship for making treasure out of trash in Nueva Ahuaypa, a Shipibo indigenous community in Peru.

After graduating with dual-master degrees from SNRE and the School of Social Work in 2008, Garratt went to Peru on a Fulbright Fellowship to use a method she first applied in Detroit—Photovoice—to identify environmental problems in five Shipibo communities. The developed rolls of film from the project and the stories accompanying them revealed illegal logging, drying lakes and growing heaps of trash.

SNRE ALUMNA AMANDA GARRATT, PICTURED WITH PERUVIAN CHILDREN, HAS RECEIVED FUNDING TO REPLICATE THE TRASH-TO-TREASURE PROJECT IN OTHER COMMUNITIES.

Garratt saw that while Western products and their packaging were reaching Shipibo communities, governmental waste services were not, and after several years of access to bottled goods, many families were essentially living atop mini aboveground landfills.

Inspired by a similar project elsewhere in Peru, Garratt began working with the Shipibo community of Nueva Ahuaypa to develop a waste management program. Together, they installed trash receptacles, built a Resource Reuse Center and began collecting recyclables. As a pilot project, schoolchildren filled plastic bottles with non-compostable trash and used them to construct a bench in the shade next to the soccer field. Community members are now employed as collectors and are busy making bottle-bricks to build a local meeting center.

"Almost three years later, we have a fully functioning, job-generating waste management program in Nueva Ahuaypa," Garratt said. The project was picked up by a nonprofit called Alianza Arkana, and Garratt now has funding to replicate it in seven more communities.

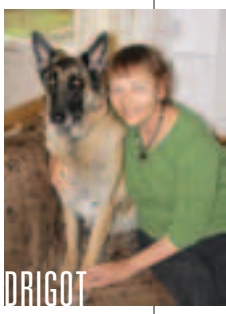
SHARE YOUR NEWS

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.

SWAN

James Swan (B.S. '65, Ph.D. '69) is co-executive producer of the "Wild Justice" series on the National Geographic Channel. The show monitors the efforts of California game wardens as they patrol everything from 1,100 miles of coastal waters and high deserts to the giant sequoias to Sierra Nevada mountains. This group of law enforcement officers are constantly in pursuit of poachers, polluters and illegal marijuana growers; while still making sure hunters and anglers follow the rules. The show began its second season in March. In November 2010, it set the record for documentary-reality series premieres on the National Geographic Channel with 3.2 million viewers. This year, his Snow Goose Productions is producing 20 episodes, several of which are about illegal drug cartel marijuana gardens on public wildlands, which is the subject of a book he recently co-authored titled *War in the Woods*.

Diane Drigot (M.S. '72, Ph.D. '75) is senior natural resources manager in the Environmental Department at the Marine Corps Base Hawaii. Since arriving in 1982, she played a critical role in growing the environmental staff from one (herself) to about 30 employees and built an award-winning program that emphasizes public involvement. The Marine Base is on the windward side of O'ahu and serves as a training base for more than 10,000 Marines and sailors. The site also is home to 10 endangered species (both terrestial and marine), dozens of migratory birds, wetlands and offshore marine areas. She previously served stints as director of environmental studies at the University of Hawaii-Manoa campus; as an environmental consultant; a research associate at the East-West Center's former Environment and Policy Institute; and as director of environmental studies at the University of Northern Colorado. While at SNRE, she was involved in organizing the first Earth Day at U-M.



DRIGOT

John S. Troy (M.L.A. '73) won a Texas ASLA Merit award for a residential garden design in San Antonio, Tex. The classically designed garden is fully sustainable with its own captured water supply and organic care. Besides his design practice, John is on the executive board of the San Antonio Botanical Gardens and is part of the Garden Conservancy's effort to preserve Peckerwood Garden in Hempstead, Tex., near Houston.

TROY

Jerry de Gryse (B.S. '74), who leads the design firm of Inspiring Place, received numerous awards at the 2011 Australian Institute of Landscape Architects (Tasmania) biennial awards. The company received an award for planning for its Design Guidelines for Nature Based Tourism – Victoria; an Award of Excellence in Urban Design for its Urban Design Strategy for Kangaroo Bay near Hobart; and the Medal for Landscape Architecture. The Medal was for its work at Saffire (above), a luxury eco-tourism resort on Tasmania's east coast. The jury commented that the project "persuasively conveys the key role of landscape architecture in fostering a deep sense of stewardship and engagement with the unique Tasmanian landscapes that support, inspire and delight both visitors and inhabitants alike." Inspiring Place is a multi-disciplinary firm working in the area of tourism, recreation, environmental planning and landscape architecture. The Medal is the top state prize given in one year and is only awarded to one winner. "I'm pleased to lead a team of skilled people, working across the broad spectrum of work in the profession. My training in Natural Resources underpins an ecological vision that fuels the work of our practice," Jerry said. "Thirty-plus years on, I remember my experiences of the first Earth Day in Ann Arbor and my teachers at SNR as inspirations to do good work for the planet."

Carl Weimer (B.S. '76), executive director of the Pipeline Safety Trust, returned to campus to be part of a panel discussion organized by the U-M Law School's Environmental Law & Policy Program. The panel was titled "Out of Sight, Out of Mind? Oil Pipelines in the Great Lakes Region: Learning from the Enbridge Spill in Marshall, MI." The Bellingham, Wash.-based Pipeline Safety Trust promotes fuel transportation safety through partnerships with residents, safety advocates, government and industry. Carl serves on the Washington State Citizens Committee on Pipeline Safety and has testified to both the U.S. House of Representatives and Senate on pipeline safety issue.

Todd H. Votteler (M.S. '89) was recently named chairman of the Texas Land Trust Council, a partnership formed in 1999 with the Texas Parks and Wildlife Department to support the more than 25 land trusts in Texas. Todd is executive manager of intergovernmental relations and policy at the Guadalupe-Blanco River Authority. His duties range from legislative and congressional contacts and Edwards Aquifer issues to managing major research studies. In 1996, he was appointed the Federal Special Master for the Endangered Species Act litigation, Sierra Club v. San Antonio. Previously, he was a research scientist at the Battelle-Pacific Northwest National Laboratory in Washington, D.C.

Todd A. Aagaard (M.S. '98) gave an address as part of the U-M Law School's Environmental Law & Policy Program Lecture Series this spring. Todd is an associate law professor at Villanova University School of Law. He received his J.D. from the U-M Law School in 1997, where he was editor-in-chief of the *Michigan Law Review* and an executive editor of the *Michigan Journal of Race & Law*. His lecture focused on the National Environmental Policy Act and was based on a forthcoming article in the inaugural issue of the *Michigan Journal of Environmental and Administrative Law.*

Alex Linkow (M.S., M.B.A. '11) is the Fair Food Fund program director at Ann Arbor-based Fair Food Network. The fund is being developed to invest in ventures that connect small and medium-sized sustainable New England farms with the growing demand for local, sustainably-produced food. During the planning process, Alex is meeting with stakeholders to gain a better understanding of the current challenges, needs and opportunities in the New England food system, and he is using this input to help create the fund's business plan. He came back to the Dana Building April 2 to meet with current students and discuss food systems and sustainability.

PORTFOLIO DAY

Jessica Neafsey (M.L.A. '10), an associate at Johnson Hill Land Ethics Studio in Ann Arbor, reviews a portfolio compiled by current Landscape Architecture student **Stephanie Austin** (right). Jessica and other local alumni annually participate in the MLA Portfolio Day, which features one-on-one portfolio critique sessions as well as informational interviews with prospective employers.

IN MEMORIAM

Eugene F. Stoermer, a former professor at SNRE, died Feb. 17. He was a leading researcher in diatoms, with a special emphasis on freshwater species of the North American Great Lakes. He was a professor of biology while at SNRE, where he taught from 1976 until his retirement in 2005, when he was honored with an emeritus professor designation. Stoermer originally coined and used the term "Anthropocene" from the early 1980s to refer to the impact and evidence for the impact of human activities on the planet earth.

Duke Fellows return for conservation forum

FELLOWSHIP

Nearly two dozen SNRE alumni offered insights and shared professional experiences as part of a special school-wide symposium March 16 exploring conservation leadership. Nearly all the returning graduates were Doris Duke Conservation Fellows while at SNRE, and so the event doubled as a reunion for current and past students who received that award, which came to SNRE in 2000.

The "Conservation Forward: Environmental Leadership in Action" program featured four panel discussions and a keynote address by **John Ehrmann (M.S. '81, Ph.D. '97)**, co-founder and senior and managing partner of the Meridian Institute, a leading organization working to build consensus around challenging sustainability problems (*see related story, opposite page*). Ehrmann was introduced in the afternoon session by SNRE Professor **Steve Yaffee (B.S. '72, M.S. '73)**, who served as program director for the recently concluded Duke Fellows program at SNRE, and who continues to lead the school's Wyss Scholars program.

At the event's conclusions, current and past Duke Fellows—along with a few Wyss Scholars—gathered for a photo op at the Michigan League, where a dinner was organized in their honor. Pictured along with Yaffee (front row, wearing a tie) were:

1: Maggie Allan is a current Duke Fellow.

2: Kevin Li is a current Duke Fellow.

3: Dave Chadwick (M.S. '03) works for Colorado Parks and Wildlife in Denver, Colo., where he implements public engagement and stakeholder strategies and manages several conservation planning and strategic policy initiatives.

4: Rebecca Held (M.S. '11) is program coordinator at the Great Lakes Restoration Initiative for the National Oceanic and Atmospheric Administration.

5. Mary Adelzadeh (M.S. '06) is a land conservation specialist for the Pacific Forest and Watershed Lands Stewardship Council in Sacramento, Calif., where she works to preserve and enhance private land throughout California for diverse public benefits.

6: Stephanie Bertaina (M.S. '06) is a senior policy analyst with the U.S. Environmental Protection Agency's Office of Sustainable Communities in Washington, D.C.

7: Rachel Chadderdon (M.S. '10) is program director for the Double Up Food Bucks project for Fair Food Network, where she works with market managers, vendors and community partners to implement the SNAP matching project at participating markets.

8: Ria Berns is a current Duke Fellow.

9: Diana Portner is a current Wyss Scholar.

10: Kevin Le is a current Wyss Scholar.

11: Kat Superfisky is a current Duke Fellow.

12: Megan Kram (M.S. '02) is a project manager for The Nature Conservancy in Boulder, Colo., where she works to minimize the footprint of energy development through policy and land-use planning efforts on public and private lands.

13: Rebecca Brooke (M.S., M.B.A. '10) is in the last months of a Presidential Management Fellowship with the US Forest Service, where she works in strategic planning, budget and accountability on the agency's Fiscal Year 2013 budget request to Congress.

14: Maggie Wenger is a current Duke Fellow.

15: Martha Campbell is a current Wyss Scholar.

16: Kristen Johnson (B.S. '04, M.S. '09) is an analysis and sustainability specialist with the U.S. Department of Energy's Biomass Program in Washington, D.C., where she helps coordinate strategic analysis of advanced biofuels technologies and the program's efforts to understand and promote the environmental benefits of bioenergy while reducing potential negative impacts.

17: Aviva Glaser (M.S., M.P.H. '10) is the legislative representative for agriculture policy at the National Wildlife Federation in Washington, D.C. Aviva works on policy efforts to protect and enhance wildlife habitat on working landscapes; to ensure funding for agriculture conservation programs; and to ensure that bioenergy is produced sustainably.

18: Lauren Pidot (M.S. '08) is a wilderness specialist for the Bureau of Land Management's (BLM) office in Washington, D.C., where she works on policy and guidance for wilderness and wilderness study areas as well as other lands within the BLM's National Landscape Conservation System.

19: Ariel Shaw is a current Duke Fellow.

20: Lisa Spalding (B.S. '00, M.S. '06) is a philanthropic advisor with Boston-based The Philanthropic Initiative.

21: Erin Carey (M.S. '09) works for the US Forest Service International Programs as a Latin America specialist. She manages a portfolio of programs and projects in South America, with most of her

Photo by Scott Soderberg, U-M Photo Services

time devoted to a five-year program of technical cooperation with the government of Peru on forest sector reform.

22: Parrish Bergquist is a current Duke Fellow.

23: Allen Hance (M.S. '00) is the executive director of the Chesapeake Bay Trust, a public foundation created in 1985 by the Maryland General Assembly to promote public participation in the restoration and protection of the Chesapeake Bay and its tributaries.

24: Julian Dautremont-Smith is a current Duke Fellow.

25: Sarah Hines (M.S., M.B.A. '07) joined the federal Department of Agriculture's US Forest Service as a Presidential Management Fellow in September 2007. She works for the Rocky Mountain Research Station in Fort Collins, Colo.

26: Seth Federspiel is a current Duke Fellow.

27: Gus Winkes is a current Duke Fellow.

28: Wendy Adams (M.S. '04) is a legislative assistant for U.S. Sen. Mark Udall (D-Colo.), a member of the Senate Energy and Natural Resources Committee and chairman of the National Parks Subcommittee.

29: Colin Hume (M.S. '10) lives in Seattle and is a watershed ecologist for the Washington State Department of Ecology, where he is the coordinator for the Watershed Characterization Technical Assistance Team.

30: Kristina Geiger is a current Duke Fellow.

31: Laura Matson is a current Duke Fellow.

32: Clayton Elliott (M.S. '10 – Wyss Scholar) lives and works in Helena, Mont., as a lobbyist and community organizer for Northern Plains Resource Council.

EHRMANN: THE POWER OF RELATIONSHIPS

"It's all about relationships. It's all about relationships. I can't say it too many times," said **John Ehrmann (M.S. '81, Ph.D. '97).**

He returned to Ann Arbor to give the keynote address March 16 at the "Conservation Forward: Environmental Leadership in Action" symposium, organized by current and past Doris Duke Conservation fellows at SNRE. Ehrmann called upon his extensive career in conflict resolution and mediation to offer insight into current challenges and opportunities in the field of conservation.

As the senior and managing partner of Meridian Institute, Ehrmann has facilitated negotiations on many high-profile projects, such as the Millennium Ecosystem Assessment, the United States Joint Ocean Commission Initiative and the United States Climate Action Partnership. The seeds for Meridian were planted during his doctoral work at SNRE. With Dean Emeritus James Crowfoot and others, Ehrmann began to study the idea of using mediation in environmental decision-making—at the time totally untrodden turf. He recalls SNRE's interdisciplinary approach as fodder for this new field, since the school brought ecologists, policy analysts and others together under the same roof, allowing Ehrmann to observe the tensions and inventions of their interactions.

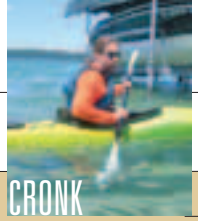
– ALLIE GOLDSTEIN

FAIR thee well

The annual Career Fair and Master's Project Client Fair hosted by SNRE have become mini-reunions for returning alumni. Both events were presented earlier this year in the Ford Commons in the Dana Building. Dozens of prospective clients and employers attended. We asked alumni who returned to give us an "elevator pitch" regarding their organization and what they do.

(Interested in participating in next year's SNRE Career Fair or Master's Project Client Fair? For more information, send an email to snre.careers@umich.edu.)

TOP: SNRE STUDENTS HEAR FROM A POTENTIAL CLIENT ABOUT A POSSIBLE MASTER'S PROJECT. **BOTTOM:** STUDENTS MEET PROSPECTIVE EMPLOYERS AT THE CAREER FAIR.


CRONK


GELB

Kevin Cronk (M.S. '02) and Jennifer Gelb (B.S. '94)

The Tip of the Mitt Watershed Council is thrilled that a group of master's students is on board for the Crucial Creeks Watershed Project. The group will develop watershed management plans for two imperiled creeks in the northern Lower Peninsula of Michigan. In-house staff coordinating the project are Kevin Cronk and Jennifer Buchanan Gelb. Kevin coordinates the Watershed Council's water-quality monitoring programs; performs biological surveys and aquatic ecosystem research for lake associations and others; and assists with coordination and implementation of watershed management projects. Jennifer plans and coordinates shoreline and road-stream crossing restoration projects; designs and oversees installation of storm water BMPs; and develops and implements watershed management plans.

Becky Gajewski (M.S. '10)

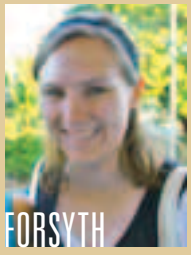
Natural resource technician,
Huron-Clinton Metroparks


GAJEWSKI

My job is to create and carry out management plans for various high-quality natural areas throughout the parks. This involves completing field surveys to document characteristics such as the dominant plant community, the locations of any rare plant or animal species and the presence of ecosystem threats such as invasive species. I work with a team of interns who help carry out fieldwork to combat these threats and monitor areas that have already been restored. I also assist in other management activities, such as prescribed fire planning, deer herd management and ecological quality mapping. I am fortunate that my job also affords me the opportunity to work with volunteers during ecological restoration work days throughout the year. People of all ages and members of various environmental and civic organizations come out to lend a hand, and I enjoy the opportunity to teach them about the special natural places in southeast Michigan and what can be done to protect them.

Danielle Forsyth (M.S. '11)

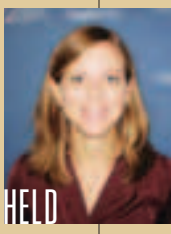
GIS and remote-sensing intern, Ducks Unlimited


FORSYTH

Ducks Unlimited is a non-profit organization that works to conserve waterfowl and wetlands. For over 70 years, we have worked with public and private partners to restore and protect over 13 million acres of habitat. In my role, I work with a team of Ducks Unlimited staff and members of the Minnesota DNR to update the National Wetlands Inventory, or NWI. I spend most of my time digitizing wetlands in aerial photography and classifying digitized wetlands into types. What originally attracted me to the job was my interest in remote sensing, and I had heard great things about working for this organization. One of my favorite aspects so far has been helping out with the company's annual chili cook-off fundraiser, where I helped to run the games for the night. After my internship is over, I am hoping to stay in the Ann Arbor area and find full-time employment at a local organization.

Rebecca Held (M.S. '11)

Program coordinator, Great Lakes Restoration Initiative (GLRI), National Oceanic and Atmospheric Administration


HELD

The GLRI is the largest federal investment in the Great Lakes in decades, with 11 federal agencies involved in restoration activities focused on cleaning up toxics and areas of concern; combating invasive species; promoting near-shore health by protecting watersheds from polluted run-off; restoring wetlands and other habitats; and tracking progress and working with strategic partners. I assist with NOAA GLRI planning, execution, review, outreach and communications. I also provide support for NOAA Great Lakes Regional Collaboration Team activities.

Yi Hou (M.S. '11)

Associate, ENVIRON


HOU

My work includes ecological assessments, spatial-data analysis, 3D analysis and visualization using ESRI ArcGIS, general statistics (SPSS, SAS, R). I use GIS skills to develop visualizations and analytical tools to present spatial distribution of chemical data. My professional experience since joining ENVIRON includes assembling project data into a geodatabase for analysis of contaminant distributions in soil and sediment; conducting 3D analysis to calculate estimated dredge volume; performing 3D visualization by using LIDAR and river bathymetric data; and producing GIS maps of floodplains, geomorphy, land use, soil and sediment chemical concentrations in support of several technical and agency meeting presentations.

Phil Huber (B.S.F. '81)

Acting forest wildlife biologist, Huron-Manistee National Forests, US Forest Service

Most of my career has been spent working on the recovery of the federally endangered songbird, the Kirtland's warbler. The habitat management program has been extremely successful, and discussions are now under way to remove the species from the federal list of endangered species. My forestry education has prepared me well to manage the jack pine ecosystem, and develop the young jack pine habitat on which the Kirtland's warbler and many other species depend. It was a perfect fit for me—using vegetation management to improve wildlife habitat. I also enjoy the opportunities for travel. In my time with the Forest Service, I have travelled to the Bahamas, the winter home of the Kirtland's warbler, and I travel west almost every summer to work as a dispatcher for wildfires in Missoula, Mont. I enjoy returning to SNRE, where it all began for me, and it is always good to visit with my mentor and friend, Dr. Burton Barnes. And this fall, my daughter, Elise, will be a freshman at U of M! Go Blue!

Nadia Martin (M.S. '10)

Associate consultant, Industrial Economics, Inc.

I work mostly on Natural Resource Damage Assessments for clients including the U.S. Fish and Wildlife Service, U.S. Department of Energy, U.S. Department of Justice and state governments. I joined Industrial Economics because I was attracted to the variety of work I would be able to do with the firm; as a consultant, I typically work on four-to-six projects at a time, and the work is never repetitive or boring. I was also excited about the opportunity to put my scientific and ecological background to a practical use. In order to estimate injury to natural resources and the potential costs of restoration, I typically study the history of a site, analyze contaminant data and determine the impact of contamination on wildlife, soil and water. I have worked on a variety of sites across the United States including oil spills, metal contaminated sites and past Manhattan project nuclear waste sites.

Kris Olsson (M.S. '90, M.S. '00)

GIS analyst, Huron River Watershed Council

I specialize in GIS analysis, landscape ecology and code and ordinance development. I joined Huron River Watershed Council (HRWC) in 1992. My current project is the bioreserve project, which aims to map, assess and protect the remaining natural areas in the Huron watershed. HRWC has created a bioreserve map of these areas, and ranked them by 15 ecological criteria to determine those lands most important to protect in order to maintain the health of the Huron River system. HRWC works with conservancies, local governments and parks departments to establish strategic conservation priorities, perform field assessments on priority natural area properties and work with those organizations and also with property owners on permanent protection and restoration of natural areas. HRWC also works with local governments to implement land-use planning tools that manage growth to protect the most important natural areas.

Laura Palombi (M.S., M.B.A. '11)

Project manager, Clean Energy Coalition

I work to advance alternative fuel infrastructure and advanced vehicle technologies throughout Michigan. I manage Fuel Forward, a portfolio of services for reducing fuel consumption and environmental impact, and deploying alternative fuel vehicles in public and private fleets. With support from the Kresge Foundation, we work directly with the City of Detroit's fleet managers and purchasing department to find low-cost solutions to improving fleet operations. Another aspect of my job also allows me to provide training, outreach and grant writing services for Department of Energy Clean Cities program partners.

Mark Rabinsky (M.S. '08)

Project manager, Clean Energy Coalition

I am working to develop a plug-in electric vehicle charging infrastructure community preparedness plan for the state of Michigan. This one-year project will help identify barriers and incentives, while working with stakeholders to help form recommendations and identify best practices to facilitate plug-in electric vehicle adoption regionally. The coalition will develop a prioritized list of community infrastructure planning steps, work to define and develop site selection criteria and identify the economic and workforce development opportunities relevant to electric vehicle supply equipment installation and broad electric vehicle deployment. Once completed, it will provide technical expertise, municipal recommendations and resources for communities. I also am the coordinator of Ann Arbor Clean Cities, a U.S. Department of Energy program advancing economic, environmental and energy security by supporting local actions to reduce petroleum consumption in transportation.

David Sivyer (B.S.F. '83)

Forestry services manager, City of Milwaukee, Wis.

I am responsible for directing a highly progressive municipal forestry program encompassing natural resource conservation, programmed maintenance and reforestation components. I administer a $15 million budget and a staff of 171 full-time employees that maintain a street tree population of 193,000 street trees, 120 miles of irrigated landscaped boulevards and a 160-acre municipal nursery that produces 4,000 trees and 300,000 annuals and perennials each year. Recently, I directed a project using remote-sensed hyperspectral imagery to map the location of ash trees at risk to Emerald Ash Borer. It represents the first successful use of hyperspectral imaging (probably in the world) to map urban host trees at risk to an aggressive forest pest. It also has application for vegetation mapping for other natural resource management applications.

Chris Theriot (M.S. '08)

Program manager, Ducks Unlimited wetland mitigation and ecological services, Great Lakes Atlantic regional office

We are charged with building a business for wetland mitigation to fund DU's conservation mission. Under the Clean Water Act, the federal government has a "no-net loss" approach to wetland impacts. If a company or municipality impacts a wetland, it must mitigate for this impact one of three ways: buy a wetland credit from a mitigation bank, pay into an in-lieu fund or restore a wetland in the same watershed. Mitigation is a multi-billion dollar ecosystem marketplace. My job is to oversee a portfolio of mitigation projects and coordinate the delivery of DU's in-lieu fee programs in Vermont and New York. My work ranges from contacting oil and gas companies, writing a proposal for wetland monitoring services or negotiating with the Army Corps of Engineers or U.S. Fish and Wildlife on mitigation-related matters. I draw on the training from Steve Yaffee's and Julia Wondolleck's negotiating course and SNRE ecology classes, especially since I work at the intersection of science, business and public policy.

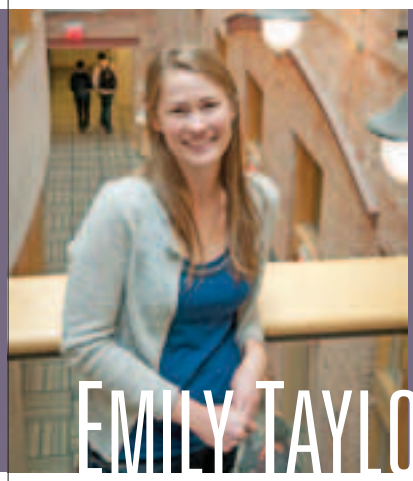
Jennifer Sieracki (B.S. '94, M.L.A. '96)

Landscape architect, SmithGroupJJR

I have spent the past several years engaged in work providing worthy resting places for our nation's deserving veterans. The breadth has spanned from land-use planning to construction-document preparation for burial expansion projects and site improvements at existing National Cemeteries. The great design challenge lies in the balance of creating pleasant environments for visitors that are not cost prohibitive to maintain, protecting natural assets and maximizing available land for burials.

MAKING A

Each year, SNRE alumni are helping the next generation of environmental leaders complete their degrees. This help comes in many sizes, but the most popular is financial support of the Annual Fund. The fund makes possible the SNRE Annual Fund Scholarship Award, which is awarded at the dean's discretion based on ability and need. Among the recipients this year are Elizabeth Lillard, Billy Morrison, Emily Taylor and Jun Wang. They and the entire school thank alumni for their donations in the past year.



EMILY TAYLOR

Age: 26
Hometown: North Rose, N.Y.
Undergraduate major, college: Government, Smith College
SNRE field of study: Sustainable Systems
Graduating: Spring 2013

I came to SNRE to acquire the tools necessary to impact the world around me. After graduating from Smith, I spent several years as a development professional for my alma mater and another liberal arts college. But I knew I needed to return to my environmental studies and take an interdisciplinary approach so I can speak the various languages necessary to change minds across sectors.

I want to focus on the intersection of business and competitive sustainability strategies. I am very interested in social enterprise in the developing world and hope to integrate my studies to work I currently do in Belize. However, one of my favorite aspects of SNRE is that I can take classes in any track and fulfill my curiosity in so many fields, especially policy and planning. Last semester, I did research with Professor **Rachel Kaplan** that identified potential suggestions for policymakers on how best to foster and encourage well-being within a community. This semester, I worked with a local non-profit organization, Clean Energy Coalition, to promote the use and adoption of clean energy technologies.

I hope to take my expertise into the private sector and help corporations develop sustainability plans to make their business more competitive while reducing their footprint. This summer, I am interning with the World Resources Institute in climate finance.

BILLY MORRISON

Age: 24
Hometown: Novi, Mich.
Undergraduate major, college: Marketing, Western Michigan University
SNRE field of study: Landscape Architecture
Graduating: Spring 2014

With ecological issues and redevelopment projects more abundant, it is very exciting to be learning Landscape Architecture at SNRE. The knowledge I am gaining through the MLA program will be beneficial when confronted with issues requiring environmentally friendly solutions.

One of the principal reasons I was drawn to the University of Michigan was because the Landscape Architecture program was offered within SNRE. I am fascinated by brownfield redevelopment and green-roofing projects and believe being immersed in SNRE will give me a unique perspective not available elsewhere. With the increasing popularity of LEED-certified projects, developers are brainstorming ways to make their designs more environmentally friendly. The exposure to ecological issues that SNRE offers will provide a step-up over the competition.

My ideal landscape architecture firm would be relatively small, personable in nature and focused on brownfields or green-roofing projects. From my experience, projects are taking into account the ecological ramifications they are having on the environment far more now than ever before.

DIFFERENCE

Photos by Dave Brenner

Elizabeth Lillard

Age: 22
Hometown: Westfield, N.J.
Undergraduate major, college: Environmental Studies, Lewis & Clark College
SNRE field of study: Aquatic Sciences/Conservation Ecology
Graduating: Spring 2012

My work focuses on efforts to measure and communicate sustainability performance through tools such as ecolabels, rating systems and reporting frameworks. In particular, I am interested in the application of such tools to educational institutions. Such institutions have a powerful role in society and will need to be sustainability leaders if society is to achieve sustainability.

Before coming to U-M, I helped design and implement a comprehensive sustainability rating system for higher education institutions called the Sustainability Tracking, Assessment & Rating System (STARS) while working as the associate director of the Association for the Advancement of Sustainability in Higher Education. The tool is now in use at almost 300 colleges and universities across the United States and Canada. For my master's practicum, I evaluated green-rating systems for K-12 schools. I found that there is substantial room for improvement in these tools. That's why I'm working with the Green Schools National Network to developing recommendations for a new national green school rating system.

My involvement in sustainability rating and reporting led to an invitation to serve as a stakeholder in a group convened by British Petroleum to advise them on how to improve and rebuild their sustainability programs in the aftermath of the oil spill in the Gulf of Mexico.

Jun Wang

Age: 28
Hometown: Tengzhou, Shandong Province
Undergraduate major, college: Geography (Beijing University – both bachelor's and master's)
SNRE field of study: Resource and Ecology Management (doctoral program)
Graduating: April 2013

I am a fourth-year Ph.D. candidate. I came from China and graduated from the best university in China, Beijing University. I studied geography in my bachelor's and master's periods. Geography is an interesting and meaningful discipline, which deals with human-environment interactions, and geographers will help to build a sustainable world.

I chose the University of Michigan because it is one of the best universities in the world, and the School of Natural Resources and Environment is also famous in the field of natural resources and environmental research. Now, I am under the supervision of Professor **Daniel Brown** and studying Environmental Informatics (remote sensing, geographical information systems and spatial statistics) and sustainable natural resource governance. Specifically, we are working on a NASA-funded project studying grassland degradation on the Mongolian plateau and societal adaptations under changing climate. The Mongolian grassland is part of the great Eurasian grassland, and this research also will help us to understand grassland dynamics and sustainable livelihoods of herders in other semiarid regions of the world. The research work is going well, and we will have our final research report done in the next year. Specifically, I am trying to strengthen my own home field (geospatial analysis and modeling) and extend my research to connect human dimensions of global environmental change.

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ENVIRONMENTAL JUSTICE COLLOQUIUM

The Oct. 5-6 "Environmental Justice Colloquium" explores the current successes and long-term challenges facing the national Environmental Justice movement while honoring one of its earliest champions: **SNRE Professor Bunyan Bryant**. The events, including a tribute dinner to Professor Bryant, will take place in Ann Arbor over those two days.

STAY INFORMED, GET ON THE MAILING LIST AT
snre.umich.edu/bryant

CLASS OF 1962 REUNION

MORE INFORMATION AT
reunions.umich.edu

Come back to 'SNR' Oct. 12-13 for days of discovery and to meet with today's students and faculty, hear from the new dean and share in a celebratory lunch—all capped with your invitation to dinner and fun at the annual Saginaw Forest campfire Friday (@ 5 p.m.)

SOME OF THE MEMBERS OF LAST YEAR'S CLASS OF '61 REUNION POSED FOR A PHOTO ON THE DOCK AT SAGINAW FOREST. FROM LEFT, ATTENDEES WERE TIMOTHY MOORE, JULIAN STIENON, NORMAN KIEL, JERRY LONGCORE AND DANFORD MEGGISON.