

WINTER 2016

**M** | SNRE

# Stewards

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



Standing up for  
**Flint's**  
children

plus:

MAKING CITIES MORE SUSTAINABLE

FACES & PLACES



## DEAR FRIENDS



It's an exciting time at SNRE (isn't it always?) as we continue to evolve and shape the future of environmental sustainability across the globe.

A measure of our stature is the star-studded list of environmental leaders spending time in the Dana Building this winter, including Aaron Mair, Sierra Club president; Robin Kimmerer, founding director of SUNY's Center for Native Peoples and the Environment; Ruth DeFries, MacArthur "genius" fellow and author of *The Big Ratchet: How Humanity Thrives in the Face of Natural Crisis*; Steve Palumbi, director of Stanford's Hopkins Marine Station and author of *The Evolution Explosion: How Humans Cause Rapid Evolutionary Change*; and, last but certainly not least, José María Figueres, chairman of the board of the Carbon War Room and former president of Costa Rica.

These events bring our community prime opportunities to interact with some of the most influential minds in today's environmental arena, right here on campus. But we don't stop there. SNRE students and faculty travel the planet for research, advocacy, and experiential learning. In this issue of *Stewards*, you'll read about master's projects from Ann Arbor to the Amazon, our participation in the UN's 21st Conference of Parties in Paris, how we're boosting the sustainability of cities across the country, and the perceptive alumna who uncovered the Flint water crisis.

Amid all these happenings, our school is in the thick of a transformative initiative. University of Michigan Provost Martha Pollack has begun an assessment to optimize the university's positive impact on the environment. This initiative shows that SNRE's mission — to help protect the Earth's resources and achieve a sustainable society — is gaining great prominence within U-M at large. We are fortunate that the importance of the problems we all work to solve is becoming more widely recognized across campus.

I hope you'll join me in celebrating SNRE's achievements in this magazine and that you'll get in touch to share your own. We take great pride in every single one of your successes.



Daniel G. Brown  
Interim Dean and Professor

P.S. Feel free to contact me at [snredean@umich.edu](mailto:snredean@umich.edu).

## MISSION

SNRE works to help protect the Earth's resources and achieve a sustainable society.

# Stewards

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

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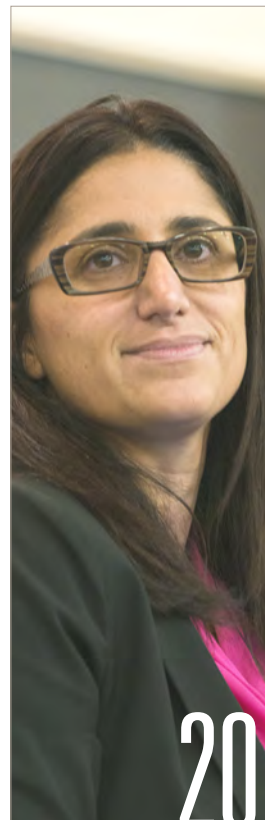


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JENNY COOPER BASTING THE PIG - 2014 GREAT ROAST



TURNING THE PIG - 2014 GREAT ROAST

## GREAT ROAST TRADITION BUILDS

Like many offbeat traditions, it all began with two guys waxing intellectual over some beer. In the fall of 2010, Tim Haines, MS '11, and Mike Elchinger, MS '12, were relaxing on their Main Street porch and found themselves engaged in a debate on Carolina versus Virginia style barbecue sauce. Then an idea came to them: Why not roast a whole pig?

With the help of Jamey Mulligan, MS '11, Sarah Howie, MS/MBA '12, and many other SNREdy co-conspirators, the Great Roast was born.

Tim, an avid cook, was the original pig and pit master. He found a *New York Times* article on how to build a backyard barbecue pit, and as enthusiasm grew and plans crystallized, word about the endeavor began to spread around SNRE.

Mike explained, "At first we imagined a suckling pig to feed perhaps 30 people. But because most of us were in Sustainable Systems, and because ambition got the better of us, we naturally thought of inviting the entire track, and then the entire master's program.

The following year, the group set its sights on an even bigger pig and giving back. With better marketing and organization, the second annual roast collected \$1,000 in donations for Appalachian Voices, a nonprofit that advocates against mountaintop-removal coal mining and works toward cleaner energy solutions.

On October 3, 2015, more than 130 SNREds gathered for the now-annual Great Roast. This last event featured a 196-pound hog and two lambs. Hosted by Montana Stevenson, MS/MBA '17, the event continues the tradition of being run completely by student volunteers.

"I'm thrilled that this has become an ongoing tradition," said Tim, who has tossed around the idea of organizing an endowment for the pig. "I hope it continues for years to come." 🌱



ANDY AT THE FIRE - 2015 GREAT ROAST



THE ROASTING CREW CHECKS ON THE MEAT - 2015 GREAT ROAST



# 2015 WINTER SOLSTICE

Each December, SNRE students, faculty, staff, and friends gather to celebrate the winter solstice—along with the welcome end of the fall semester! This year's fete included entertainment by Broken Spokes, an Ann Arbor-based quintet featuring our own Dean Dan Brown on mandolins and vocals. The prize for the annual gingerbread competition went to the most timely creation, "Merry COP-mas: We Like to Party" (see image below).





THE U-M COP21 DELEGATION, FROM LEFT: BRIAN LA SHIER, LIZ ULTEE, ROXANA GALUSCA, NICOLE RYAN, MAYANK VIKAS, PAUL EDWARDS, MATT BISHOP, AVIK BASU, MATT IRISH, AND BENJAMIN MORSE

# SNREds IN PARIS

## COP21 DELEGATES RESPOND TO GLOBAL AGREEMENT ON CLIMATE CHANGE

In December 2015, close to 50,000 government leaders, private industry innovators, environmental advocates, and others from more than 190 countries gathered for the 21st Conference of Parties (COP21), a meeting of the countries under the United Nations Framework Convention on Climate Change (UNFCCC). The University of Michigan was part of an elite group of universities worldwide that maintain COP delegations and traveled to Paris to attend. SNRE students Brian La Shier, Benjamin Morse, Nicole Ryan, and Mayank Vikas, as well as SNRE faculty member Avik Basu, were members of this year's 10-person U-M delegation.

### WHAT WAS THE OUTCOME OF COP21?

**Vikas:** The countries worked diligently to reach agreement on a comprehensive, global plan to respond to climate change. These leaders hope that the agreement adopted on December 12, 2015 will help humankind move away from fossil fuels, reinvent our energy economy as a green one based on renewable resources, and usher in a sustainable new world for generations yet to come. However, environmentalists are split on the verdict. While some have welcomed the momentum towards a green economy, others have said the deal offers "too little, too late."

### WHAT WAS U-M'S ROLE IN THE CONFERENCE?

**Ryan:** We were observers and our delegation was considered a member of RINGO (Research and Independent NGOs). The role of observers is to aid in transparency of the process, but we had limited voice. Specific observer briefings were held where we could provide comments, but most of the negotiations surrounding the agreement were closed-door, limiting even our ability to aid in transparency. This was frustrating, but I also understand the desire of the negotiators not to work under the public eye.

### WHAT WAS THE OVERALL TONE OF THE EVENT?

**La Shier:** The tone varied depending on what time you took the temperature of the conference. There was a lot of optimism and determination at the start of the proceedings, but weariness and frustration began to appear as the negotiations got tougher. The proceedings were always civil, but tensions boiled over at times. Concerns often circled back to a debate between the developed and developing states over liability for past emissions, how deep emission cuts should go and for whom, financial support for developing states who can't afford to improve their adaptive capacity, and a long list of other issues centered around those two camps.

### DO YOU FEEL LIKE PROGRESS WAS MADE?

**Vikas:** Although it is a very big step that all countries were able to agree on paper, I believe the text has weakened the principles of environmental justice. Most justice issues have been given a token acknowledgement in the preamble; however, it does not reflect in the substantive provisions. I don't know if I am satisfied with an agreement that currently puts us on a 3-degree-celsius warming pathway. Has the decision-making capability of our global polity deteriorated to the extent that we can't take strong measures even when global catastrophe is looming large upon us? I am hopeful that in the coming years, corrective measures will be taken through amendments to the agreement. But I fear we are losing precious time.

**La Shier:** Yes, I believe the agreement is a significant step forward on a policy level because it sends a strong signal to the private sector and regular citizens that these nations are serious about reducing emissions. It also provides a starting point and initial, quantifiable targets for those emission reductions, which is a big deal. I think it's important to emphasize that despite the fanfare following the Paris agreement, the text will continue to evolve over the years and hopefully become much stronger.

### WHAT WERE THE HIGHLIGHTS FOR YOU?

**Ryan:** When COP President Manuel Pulgar-Vidal gathered all of the country representatives and the observers to release a new draft of the text. You could feel the excitement and anticipation in the air as hard copies were passed to the country delegates and observers ran to the document center or continuously pressed the Refresh button as they waited for it to come online.



**Morse:** When Gurdial Singh of Malaysia called for a reality check. He questioned the role that global civil society plays within the context of the negotiations and urged delegates from the Least Developed Countries (LDCs) to focus on the ideas and concepts within the text, not the text itself. He openly criticized the current text, calling for more emphasis on implementation, one of the major shortcomings of this agreement. Another memorable moment was when the delegate from Venezuela took the floor to make a subtle but important correction to the text. The representative said, "Intergenerational aspects were taken out (of the agreement) because of human error, fatigue. Please add this concept back into the text." This makes you wonder how else the text was weakened by fatigue or human error.

**La Shier:** Being a part of such a diverse international community, with people from nearly every nation on the planet. Even though everyone was interested in the same overall goal of seeing an agreement reached, the range of interests and issues being explored by the attendees was fascinating. Climate change is a highly interdisciplinary issue and it was exciting to interact with other professionals in my field.

### WHICH ENVIRONMENTAL LEADERS DID YOU MEET?

**Vikas:** I'm very lucky I got to meet Cathy Towtongie, an Inuit leader from Canada. It was a surreal experience to hear her talk about the

dangers of melting ice, grizzly and polar bears mating, and even her generously showing me a video on her phone of her granddaughter racing a dog sled. Interviewing José María Figueres Olsen, former president of Costa Rica, was another great experience.

**La Shier:** I met with Binyam Yakob Gebreyes, an Ethiopian delegate who specializes in international law. He explained that while Ethiopia maintains its ambition to reach middle-income status as a nation, it has made mitigation and adaptation to climate change a true priority. He also explained that as an LDC, Ethiopia's bargaining power came from its ability to align itself with other countries who can negotiate as one collective voice, rather than that of an individual nation.

### WHAT IS THE ULTIMATE IMPACT FOR SNRE STUDENTS?

**Basu:** The highlight of the conference for me was to see how the U-M student delegates were able, in a matter of weeks, to understand and effectively communicate about issues like INDCs (Intended Nationally Determined Contributions), adaptation, loss and damage, and climate finance. This gives me hope that the climate change negotiations need not be a niche issue that only a few can fathom, but rather a process that has potential for fuller participation that our current students can help lead. 🌱



# MASTER'S PROJECTS

## TAKE SNREDS AROUND THE WORLD

From Ann Arbor to the Amazon, SNRE students are making an impact through interdisciplinary master's projects that blend sustainability, business, environmental justice, policy, and more. A core part of SNRE's experiential learning component, master's projects bring University of Michigan caliber expertise to local and global communities, supporting the school's mission while launching the next generation of environmental leaders into the real world.

### SUSTAINABLE SOURCING AND EXPANSION FOR FRITA BATIDOS

**Location:** Ann Arbor

**Team:** Michael Barg, MS/MBA '17, Sustainable Systems and Business

Miriam Fuchs, MS/MBA '16, Sustainable Systems and Business

Elena Huisman, MS '16, Environmental Justice and Environmental Policy & Planning

Kaitlin Paulson, MS/MBA '16, Sustainable Systems and Business

**Mission:** To evaluate the business practices and core values of restaurant Frita Batidos', and to identify and recommend sustainability measures such as composting, local food sourcing, and markets for expansion — that would provide an enhanced sustainable infrastructure.

**Insight:** According to Huisman, "Each student on the team brings a diverse background, allowing for collaborative and innovative problem solving. We've all been eager to work on different aspects of the project, allowing everyone to take ownership.

"I've really enjoyed working alongside other students and with a client. I've learned to be flexible, especially when dealing with rescoping of the project. Specifically, I've learned how complicated implementing



IAN ROBINSON AND MIKAELA RODKIN

sustainability measures (like compost receptacles and reaching out to local farmers) can be. I've enjoyed developing relationships with suppliers and learning the ins and outs of the industry."

### CLIMATE CHANGE MITIGATION THROUGH IMPROVED SUSTAINABILITY PRACTICES: ESTIMATING GREENHOUSE GAS EMISSIONS ON CATTLE RANCHES IN THE BRAZILIAN AMAZON

**Location:** Brazilian Amazon region in the states of Rondônia, Mato Grosso, Amazonas, and Pará

**Team:** Meghan Bogaerts, MS/MPP '17, Environmental Informatics and Public Policy

Lora Cirhigiri, MPP '16, Public Policy

Ian Robinson, MS/MBA '17, Environmental Planning and Policy and Business

Mikaela Rodkin, MS/MBA '17, Environmental Justice and Business

**Mission:** To understand the climate change mitigation potential of improved on-farm ranching practices in Brazil. In particular, this research seeks to understand the potential for third-party certification programs to reduce emissions from cattle ranching operations, a sector that is becoming increasingly critical in the fight against global climate change. Field research will quantify the CO<sub>2</sub>-equivalent emissions from cattle operations across four states in the Amazon biome. The project is part of a larger research agenda looking at the coffee and cattle industries in Brazil, which is funded by

the Global Innovation Initiative and jointly undertaken by the University of Michigan, the Universidade de São Paulo, and the University of Oxford.

**Insight:** Bogaerts says, "There is just no replacement for field research. I do not come from a science background, and so I have been very motivated during my time at SNRE to learn how real scientific research is done. It's been totally thrilling for me. And this project gave me an opportunity to work on a complex, long-term research project on a topic that is of serious consequence to planetary health.

"We are incredibly lucky to have a strong, dedicated team. Each person brings complementary skills to the table. Ian is well-versed in agricultural issues in Brazil, having lived and worked there. His ability to set wary ranchers at ease and convince them he understood their challenges (and his excellent Portuguese!) were probably the most-valued abilities on our team.

"Mikaela is passionate about food justice and the business of food production, and she really helped us ask probing questions about the ethics of the cattle industry and the relationship between rancher decision-making and market demand.

"Lora is our policy expert, and brought a wonderfully different perspective to the team, because she is not an SNRE student at all. She was able to conduct a separate set of in-depth interviews that provided us with context for each of the sustainability programs we visited.





DAVID MARKOWITZ, ALYSSA CUDMORE, AND BRIAN FADIE MEET WITH A BUREAU OF LAND MANAGEMENT PROJECT MANAGER

“My experience in the Environmental Informatics track helped prepare me to be useful on the technical side of things, particularly using a complex calculator to estimate CO<sup>2</sup> emissions.”

## LESSONS FROM THE DESERT RENEWABLE ENERGY CONSERVATION PROCESS

**Location:** Roughly 22.5 million acres of federal and non-federal land in the Mojave and Colorado desert regions of southern California

**Team:** Anna Bengtson, MS/MUP '17, Environmental Policy and Planning, Environmental and Land Use Planning

Alyssa Cudmore, MS '16, Environmental Policy and Planning

Brian Fadie, MS '16, Environmental Policy and Planning

David Markowitz, MS '16, Conservation Ecology

**Mission:** To help the U.S. Department of Interior's Bureau of Land Management (BLM) evaluate the six-year planning process for the California Desert Renewable Energy Conservation Plan (DRECP), which identified areas appropriate for utility-scale renewable energy development in the desert, while simultaneously conserving sensitive species, habitats, and other resources. The ultimate goal of the project is to provide a series of recommendations for the BLM as well as the broader conservation audience on how to improve implementation

of future landscape-level, multi-stakeholder conservation planning processes.

**Insight:** For Bengtson, “The greatest benefit of this project is the opportunity to work on an applied project. This provides the space for you as a student to begin to apply the lessons from our coursework to a current challenge or situation. It also helps build professional relationships, networks, and experiences that will serve us after graduation.

“Working on a disciplinary team has helped us to utilize each member's knowledge, interests, and experience. We have a couple members examining the politics and policy aspects of the projects, while other members are able to dive into the scientific, land use planning, and stakeholder engagement features of our analysis.

“Being able to specialize in topic areas within the project has allowed us to individually pursue our interests while creating a stronger overall project. It also benefits our analysis as it allows for different perspectives to be considered, which will produce more reasoned, detailed, and creative recommendations.”



STUDENTS AT THE 2015 NEW STUDENT ORIENTATION

## NEW FUNDING OPPORTUNITIES BRING DIVERSITY TO ENVIRONMENTAL WORKFORCE

SNRE has launched two new programs to introduce greater diversity into the environmental conservation workforce: the Doris Duke Conservation Scholars Program (DDCSP) and the Environmental Fellows Program (EFP). The programs are administered through the school's Office of Diversity, Equity, and Inclusion, led by Professor Dorceta Taylor.

The DDCSP is funded by a generous grant from the Doris Duke Charitable Foundation ([www.ddcf.org](http://www.ddcf.org)). The first cohort of Doris Duke Conservation

Scholars—to be named in April 2016—will comprise 20 undergraduate students chosen through a nationwide competition. U-M joins four other universities across the country that administer this program: Northern Arizona University; the University of California, Santa Cruz; the University of Florida; and the University of Washington.

This multi-year program provides participants with an immersive learning experience on and around the U-M campus, as well as in other parts of





DORIS DUKE CONSERVATION SCHOLARS PROGRAM STAFF (LEFT TO RIGHT) : PROFESSOR DORCETA TAYLOR, CARLA DHILLON, M'LIS BARTLETT, GABRIEL JONES, BEATRIZ CANAS, AND KAFI LARAMORE-JOSEY

the state. All participants will complete eight weeks of lab research at SNRE's facilities in June and July 2016, followed by an eight-week internship at an area environmental organization the following summer. The curriculum incorporates minority history, culture, and experiences into students' understanding of conservation practices.


Each scholarship provides for travel expenses, room and board, a \$4,000 stipend, and a \$250 discretionary supplement per summer.

The Environmental Fellowship Program, a partnership with Environmental Grantmakers Association (EGA) and their affiliate members, places traditionally underrepresented graduate students in environmental NGOs and philanthropic organizations. Fellows spend in 12 weeks in positions with environmental funders or beneficiary organizations. The fellowship is open to students from across the country. Host organizations will provide participants with site mentors and substantive projects that meet organizational needs.

Fellows will also attend a career development and diversity training workshop at SNRE prior to

beginning their summer work. At the end of the program, all participants are invited to attend the EGA annual retreat in Jackson, Wyoming, where they will have an opportunity to network with leading environmental funders from across the United States.

Each Fellowship provides a \$10,000 stipend and a travel award. In addition, all costs to attend the EGA retreat are paid for by the program.

Both the Doris Duke Conservation Scholars Program and the Environmental Fellows Program teach an approach to environmental leadership in which diversity and inclusion are integral. Taylor, who authored the 2014 report, "Environmental Organizations in the Great Lakes Region: An Assessment of Institutional Diversity," stresses the importance of the DDCSP and the EFP. "The significance of these programs will only increase over time as they help to showcase talent and build bridges with employers to create a robust, diverse environmental pipeline." 



**READ MORE ABOUT THE ENVIRONMENTAL FELLOWSHIP PROGRAM AT:**  
[efp-umich.squarespace.com](http://efp-umich.squarespace.com)

**READ MORE ABOUT THE DORIS DUKE CONSERVATION SCHOLARS PROGRAM AT:**  
[ddcsp-umich.com/research-internship-information](http://ddcsp-umich.com/research-internship-information)

# “quotables”

“The task we face is how to make these ecologically hard times psychologically flourishing times. How do we bring out the kinds of innate capacities necessary to meet challenges well, to cooperate, to innovate?”

*Raymond De Young, professor, on the importance of adapting human behaviors now in preparation for natural resource depletion, quoted in [America on the Couch](#).*

“If untreated water ends up in the Rouge River, it carries pollutants that reduce biodiversity, and can make it more difficult for people who live downstream to get their drinking water from the lake.”

*Joan Nassauer, professor, on the impact of her bioretention gardens in Detroit, quoted in the [Detroit News](#).*

“Sustainability is no longer being relegated to a single department of a company, government entity, or civic organization. Those responsible for implementing sustainability may not even have the word in their job title. Instead, sustainable thinking is increasingly embedded in the culture of entire organizations.”

*Don Scavia, professor, with Neil Hawkins of Dow Chemical, on the impact of the interdisciplinary Dow Sustainability Fellows program, quoted on [GreenBiz](#).*

“It’s low-hanging fruit for regulating, which is fine—nobody wants plastics in their water, that’s for sure. But when people like the attorney general for the State of New York are saying, ‘By banning microbeads, we’re going to be protecting and restoring the state’s waters,’ it’s just simply not true.”

*Allen Burton, professor, on Michigan’s potential microbead ban, quoted on [Michigan Radio](#).*

“Cities have the critical mass in terms of population such that sustainability shifts in these places can have a significant impact from a planetary perspective. Adding this critical mass to the fact that city and municipal governments may enact change much more quickly has, in my view, led to them supplanting many national governments when it comes to making rapid and measurable sustainable impacts.”

*Joe Arvai, professor and director of the Erb Institute for Global Sustainable Enterprise, on the benefits of cities investing in sustainability, quoted on [WalletHub](#).*

“To bring in the notion that humans are not perfectly rational, utility-maximizing beings in the formation of policy is long overdue.”

*Andy Hoffman, professor, on President Obama’s executive order instructing federal agencies to use behavioral science when developing programs to address climate change, quoted in [Scientific American](#).*

# FACULTY ACCOLADES

**Jose Alfaro, Rebecca Hardin, and Joan Nassauer** were recognized by the U-M Provost’s Office and the Council on Global Engagement during International Education Week, November 16-20, 2015. The SNRE professors were nominated by students in recognition of their support of international students on campus, or their support of students in educational experiences abroad.

Phythia Peay’s interview with **Raymond De Young** appears in her latest book, *America on the Couch: Psychological Perspectives on American Politics and Culture* (Lantern Books, 2015). De Young discusses “behavioral entrepreneurship” to deal with “the coming downshift,” the impending decline of resource availability.

**MaryCarol Hunter** was the lead on a presentation given at the American Society of Landscape Architects 2015 Annual Meeting in Chicago. Her research, funded by the TKF Foundation, shows that just 10 minutes of exposure to nature, two to three times per week, produces mental restoration benefits. It was published in *Frontiers in Psychology* (Aug. 19, 2015) and covered by the *Seattle Times* as well as several online sources.

**Dorceta Taylor** received the Charles Horton Cooley Award for Distinguished Scholarship awarded by the Michigan Sociological Association, the highest award given by the association for contributions to the field of sociology. Her latest book, *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*, has been included on the main stage of the American Sociological Association’s 2016 annual meeting in Seattle and will be featured in one of the Author Meets Critics sessions.

**Ming Xu** won the Laudise Young Researcher Prize from the International Society for Industrial Ecology.



## NEW FACULTY MEMBERS BRING EXPERTISE IN DECISION SCIENCE, LANDSCAPE VISUALIZATION

Three new faculty members joined SNRE last fall and are making themselves at home in the Dana Building. Coincidentally, all three come to us from the University of Calgary.

**Joe Arvai** is the Max McGraw Professor of Sustainable Enterprise in SNRE and the Ross School of Business. He is also director of the Erb Institute for Global Sustainable Enterprise. Arvai is an internationally recognized expert in the risk and decision sciences, focusing on advancing our understanding of how people process information and make decisions and tradeoffs, as well as developing tools to improve decision quality across a wide range of environmental, social, and economic contexts.

**Victoria Campbell-Arvai**, assistant research scientist, uses field and laboratory experiments, interviews, and focus groups to understand the roles of knowledge, values, attitudes, and beliefs as drivers of direct and indirect pro-environmental behaviors. She also works on individual and community engagement with environmental issues, and she is interested in the role of information provision and behavioral interventions to motivate and support behaviors that lead to positive environmental outcomes.

**Mark Lindquist**, assistant professor of landscape architecture, investigates the impact of digital media in general, and 3D visualization in particular, on the design and perception of environments. His research interests are rooted in landscape architecture and informed by experiences in professional design practice. One focus of his current research is the empirical evaluation of multisensory spatial perception, with the aim of foregrounding human experience in the design and planning of environments for more ecologically, socially, and culturally sustainable outcomes.

## HAPPY TRAILS

We recently wished well to three longtime SNRE faculty members as they celebrated their retirement and claimed the coveted title of *professor emeritus*.

### DAVID ALLAN

Allan was professor of conservation biology and ecosystem management in SNRE, retiring effective August 2015. He joined the faculty in 1990. Allan served as associate dean for academic affairs, acting dean, and interim dean. He is a leading authority on the influence of human activities on the conditions of rivers and their watersheds. He authored or coauthored more than 100 peer-reviewed articles in leading journals, as well as three books including *Stream Ecology: Structure and Function of Running Waters*. Allan received the Horace H. Rackham School of Graduate Studies Distinguished Faculty Achievement Award in 2010.

### RACHEL KAPLAN

Kaplan was professor of natural resources in SNRE, as well as professor of psychology in the College of Literature, Science, and the Arts. She joined SNRE as associate professor in 1973, was promoted to professor in 1978, and became the Samuel Trask Dana Professor of Environment and Behavior in 2000. An outstanding teacher, in 2012 she received Rackham's Distinguished Faculty Mentoring Award. As a leader in the field of environmental psychology, Kaplan sought to understand the role the environment plays in helping people become more reasonable, effective, and psychologically healthy. Other recent work focuses in the psychological dimensions of sprawl, the local planning process, the view from the window, and patterns of involvement. She recently coedited *Fostering Reasonableness: Supportive Environments for Bringing Out Our Best*, published by Maize Books. She was granted emeritus status in May 2015.

### PAUL WEBB

Webb joined U-M in 1972 as an assistant professor of natural resources. He was promoted to associate professor in 1976 and to professor in 1980. In 1986, he was appointed professor of biology; appointments as professor of ecology and evolutionary biology (2001) and professor of the environment (2008) followed. Webb served as interim dean of the School of Natural Resources & Environment in 1995-96 and as associate dean in 1996. In 2002, he was appointed associate director of the Program in the Environment and assumed the program's directorship in 2010, serving in that capacity until 2013. He was granted emeritus status in December 2014.

Globally, about 53 percent of the population lives in urban areas, according to 2014 statistics. In the United States, that number increases to 81 percent.





from gray to green & blue:

# MAKING CITIES MORE SUSTAINABLE

BY JAMIE DEPOLO

**It's** a common misperception that urban environments are less environmentally sustainable than rural or suburban areas. Urban areas are associated with factories, smog, trash, and more pavement than green space. Yet in urban areas, people and resources can be located much closer together than they can in rural areas. It's possible to conserve energy through mass transit, high-density housing, and other systems that take advantage of the proximity of an urban system.

Indeed, several hundred cities in the United States and around the world, including 40 of the world's most populous cities, aim to be sustainable cities and have set goals that include environmental sustainability, health, climate resiliency, and livability. Even so, there is no completely agreed-upon definition of what a sustainable city looks like or which components should be included.

PHOTO BY ANTHONY QUINTANO





SNRE STUDENTS JASMINE OMEKE & MARIEL BORGMAN SURVEY BLOCKS IN DETROIT'S EAST SIDE

"We need to have a very inclusive, very broad definition of sustainable cities," said Joshua Newell, SNRE assistant professor, a human-environment geographer who is helping to lead the University of Michigan's portion of a National Science Foundation (NSF) grant to build better cities. "It's not just urban planning and transportation and storm water management. We have to address all areas of consumption."

"Urban sustainability is a very large concept for me," said Joan Nassauer, SNRE professor of landscape architecture, who has worked in the area of urban sustainability and green infrastructure for more than 30 years. "We need to look at the larger resource use footprint of a city and account for all the costs and experiences of people within the city. How do goods and services reach the city? For example, what about the resource cost of digital cloud data storage? For the people who live in cities, is there clean air? Are there spaces for children to run and play and for everyone to enjoy life? Is storm water managed? To me, these exemplify what should be included."

Dean Hay (BS, '99, landscape design; MLA, '02, landscape architecture), director of green infrastructure for the nonprofit the Greening of Detroit, espouses a broad yet simple definition of urban sustainability.

"I would define a sustainable city as one where the residents and the environment can be more in balance," Hay said.

Supplementing traditional urban infrastructure of energy grids, roads, and food and water systems with green infrastructure is one way researchers, planners, and government officials are moving toward more sustainable cities.

"At the Greening of Detroit, green infrastructure incorporates both the natural environment and engineered systems to provide clean water, conserve ecosystem values and functions, and provide a wide array of benefits to people and wildlife," Hay continued.

While the Greening of Detroit looks at green infrastructure through a broad lens, the field traditionally has been focused on storm water management and few studies have looked at the tradeoffs and potential synergies between the benefits that each green infrastructure project offers, according to Newell.

"We need to consider how these green-infrastructure interventions affect a city's environmental and social-justice fabric. Are they being placed in communities and neighborhoods that may be especially vulnerable to climate change or that suffer from park poverty?" Newell said. "We need to do a much better job at identifying hotspots in the urban landscape that offer the potential to maximize benefits for the many, rather than the few."

To that end, Sara Meerow, a SNRE PhD student working with Newell, is developing a green infrastructure planning model that will help identify hot spots where green infrastructure can be placed strategically to maximize benefits. The model is a key component of U-M's portion of the NSF project.

"We've identified six indicators of green infrastructure benefits," Meerow explained. "They are managing storm water, reducing social vulnerability, increasing access to green space, reducing urban heat island effects, improving air pollution, and increasing landscape connectivity."

The researchers will be meeting with community residents in the four sample cities — Detroit, Los Angeles, New York City, and Manila — to ask each community to rank each indicator in terms of importance. The indicators will then be weighted and mapped across the four cities to see where they would offer the most benefits. Detroit will be the first test site.

"We're incorporating input on priorities and benefits from community members because what might be important to one community might not be important to another," Meerow explained. "For example, one community may be very interested in storm water management, while another might want more green space. After the model is well developed, we hope it can be transferred to other cities."

"We haven't seen another model that is this integrated," Newell said. "Ours couples environmental goals with social equity."

Integration also is essential to Nassauer's project, funded by the Erb Family Foundation through the U-M Water Center.

"In my research, I collaborate with scientists in other disciplines and use design as a type of hypothesis for the performance of socio-environmental systems," Nassauer said. "This is especially relevant in cities."

Detroit has had more homes foreclosed in the last 10 years than the total number of homes in Buffalo, New York. Since 2005, more than one in three Detroit properties — 139,699 of 384,672 — have been foreclosed because of mortgage defaults or unpaid taxes,

**"WE HAVEN'T SEEN  
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according to a *Detroit News* special report. These homes often become abandoned.

In Detroit's Warrendale neighborhood, Nassauer is leading a multidisciplinary team, including SNRE faculty members Allen Burton and Catherine Riseng, as well as researchers from Wayne State University and U-M Dearborn. The team is collaborating with the Detroit Water and Sewerage Department (DWSD), the Detroit Land Bank Authority, the Detroit Department of Neighborhoods, and several neighborhood organizations. Together the groups will design bioretention gardens that offer multiple benefits on the sites of demolished vacant homes and measure their social and environmental effects.

Using the demolition of abandoned properties to establish gardens that provide storm water and neighborhood benefits was a concept developed by Nassauer and an interdisciplinary master's project group in 2012. Designed by Nassauer's team and Tetra Tech, the DWSD green infrastructure consultant, the gardens store storm water in gravel below ground at the level of the former basements of houses that have been torn down, keeping storm water and street run-off out of sanitary sewers, which decreases the amount of water that goes to treatment facilities.

The four gardens are expected to keep about 1.2 million gallons of water out of city sewers each year. Above the gravel, flowering shrubs and perennials add beauty to the neighborhood and protect the water storage area from compaction. Required to manage a two-year storm event, the gardens are estimated to manage 50 percent of a 100-year storm event.

Construction of the gardens was completed in the fall of 2015. Before the gardens were built, Nassauer's team surveyed neighborhood residents about their impressions of the gardens and what they thought the benefits might be.

In 2016, using the new \$1.14 million Erb Family Foundation grant, the researchers will assess the social and environmental effectiveness of the gardens over time, including how the gardens affect water quality and how the gardens might affect residents' perceptions of the neighborhood and their own health. The research team also will develop concepts for extending green infrastructure over larger watersheds.

"The DWSD plans to install more bioretention gardens in the next three years," Nassauer said. "They may look different from the first ones that were installed, depending

on the location and the needs of the area, but they all will aim to contribute to the environmental and social health of the community."

While Hay and the Greening of Detroit didn't collaborate with Nassauer on the bioretention gardens, the group completed a bioswale project with similar goals in the Cody Rouge neighborhood's Stein Park in November 2015.

"The Cody Rouge neighborhood group told us they want to be the greenest area in Detroit," Hay said.

The storm water bioswale diverts up to 6,000 gallons of water — equivalent to a 10-year storm event — from city streets into the bioswale, which is made up of native and landscape plants. The project was designed and planted by students from Cody-Detroit Institute of Technology.

"Our model had a lot less engineering than Dr. Nassauer's," Hay explained. "It uses a filter strip and gravity to divert the water. We're hoping to find a balance between performance and cost."

Hay and his colleagues are working with the city to help it develop green infrastructure goals. One of many green infrastructure strategies being considered is the amount of tree canopy coverage in Detroit. The non-profit has set a goal of 40 percent canopy coverage by 2050. Current canopy coverage is about 19 percent.

"'Green infrastructure' has become the new buzz word," Hay said. "The Forest Service has been doing research on the benefits of trees. The Environmental Protection Agency has demonstrated how controlling storm water can benefit the environment and communities. More money is being directed toward green infrastructure than ever before."

"But not all green infrastructure is created equal," he continued. "There has to be a financial component for it to be a positive in the community. We also need more education in communities so they know what to ask for in green infrastructure solutions."

"The potential of green infrastructure in Detroit is much higher than it is in New York City," added Newell, "though I don't think that there is a true sustainable city out there right now. I'm not really sure that we will ever get there — that would mean the city would be providing everything for all its residents. I don't think that's realistic. But we will keep working toward achieving the goal." 🌱

## FOR MORE INFORMATION

National Science Foundation  
Integrated Urban Infrastructure  
Solutions for Environmentally  
Sustainable, Healthy, and Livable  
Cities project website:

[sustainablehealthycities.org](http://sustainablehealthycities.org)

U-M Water Center Transforming  
Vacant Land to Manage Storm Water  
and Benefit Neighborhoods project  
fact sheet:

[graham.umich.edu/media/  
pubs/Detroit-Green-  
InfrastructureFactsheet.pdf](http://graham.umich.edu/media/pubs/Detroit-Green-InfrastructureFactsheet.pdf)

The Greening of Detroit:  
[greeningofdetroit.com](http://greeningofdetroit.com)

# beloved professor TERRY BROWN REMEMBERED

Terry J. Brown, professor emeritus of landscape architecture at SNRE, died July 25, 2015, at age 67. Brown spent his entire teaching career, which spanned more than 30 years, at SNRE. Diagnosed with multiple sclerosis in 1981, Brown successfully adapted his teaching style as the disease progressed—and amassed a vast and dedicated student following in the process.

Brown's demeanor, always upbeat and receptive to the concerns of others, was ideal for his chosen profession as an educator. His genuine interest in his students' welfare made him an influential mentor to many, and his attitude, achievements, and ability to deal with adverse conditions will continue to inspire the entire SNRE community.

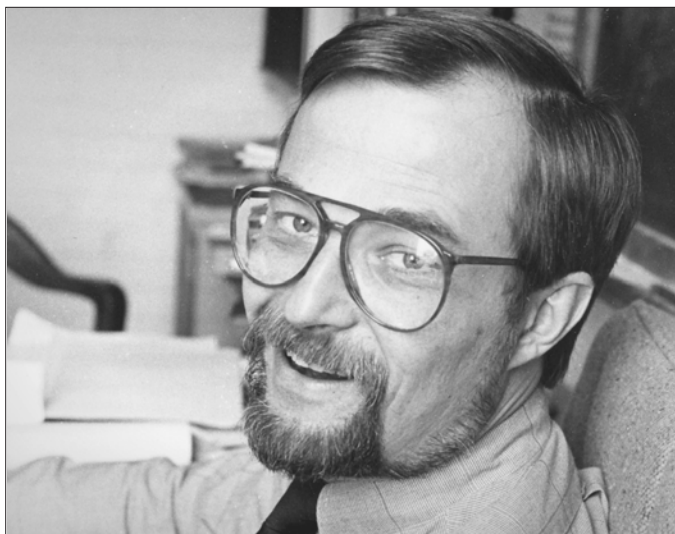
Many alumni have asked how they can contribute in honor of Terry. Janice Brown, Terry's wife, has suggested donations go towards their named scholarship for master's students in landscape architecture, the *Terry J. and Janice A. Brown Scholarship Fund*. You can donate to this fund, or to another fund in honor of Terry at <http://bit.ly/terrybrown> or by calling (888) 518-7888.

**"Even today, I still think of Terry's encouragement when I become technically challenged to integrate design thinking with computer graphics. Terry was truly part of an amazing education that I received."**

*John S. Troy, MLA '73*

**"Although it was over 40 years ago, I still can vividly recall my initial meeting with Terry and subsequently fronting up to his first studio session in the autumn of '73. His genuine passion for teaching and exuberance in welcoming his new students was apparent from the onset. Here was a teacher who was prepared to invest freely of his time, expertise, and energy in helping this new group of novices to become the very best we could."**

*Wayne Schmidt, MLA '76*



**"I remember Terry Brown's fun demeanor and ability to walk down the halls (before his illness took hold), snapping his fingers and moving very fast. He had tons of energy and made us students look meek and mild in comparison."**

*Jane Gomery, MLA '79*

**"Terry had endless energy, humor, and enthusiasm as our professor. But it was his compassion that made the biggest impact on me. During my first year as a graduate student, I worked the 4-9 p.m. shift at the Old Town and would arrive in the studio to begin my homework assignments at 9:30 p.m., just as other students were finishing and leaving to go home. That all changed after Terry discovered why I was in the studio so late every night. It wasn't long after that he offered me a position as a research assistant. This job change not only saved my sanity, but the research I did for Terry affected my work forever."**

*Zehra Osman, MLA '85*

**"First-year students were sometimes intimidated when they first met Terry, but before too long, you started to appreciate how much he cared. By the time you graduated, you understood that knowing and working with Terry really meant something. And it did."**

*Jan Lars Mueller, MLA/MS '93*

**"He is the reason that I am where I am today."**

*Patricia McGirr, MLA '94*

**"Terry's belief in me inspired me to try harder and do better. He extended the boundaries of what I thought was possible for myself."**

*Jane Buxton, MLA '95*



**"He believed in me in ways I did not yet believe in myself and encouraged me to go for it. I will always remember the support he gave me and his own courage and commitment to live life fully."**

*Stacie Printon, MLA '00*

**"I remember Terry appearing comfortable and confident with his reduced physical abilities as a result of his MS. He was comfortable challenging himself to accomplish tasks for himself and likewise asking for assistance. His acceptance of his condition and perseverance to continue his life's work was remarkable."**

*Alex Schwartz, MLA '00*

**"You could always count on Terry for a smile, a kind hello, and a chipper conversation. I always admired his positive outlook on life given the disease that he was enduring. I feel that I was lucky to get the opportunity to learn from Terry to enjoy life no matter the circumstances. I will always be grateful to Terry for the impact that he has had on my career and my life."**

*Joanna Paine Waldenmyer, MLA '04*

**"What has always impressed me most about Terry and his wife Janice is the way they took on the challenges of his disease with humor, strength, and courage. Both of them are the toughest and most courageous people I know. Terry continued to teach in spite of his limitations and the difficulties that the Dana Building presented to his life. In doing so, he was an inspiration to all of the faculty and students who knew him. He faced his challenges with humor, grace, and steadfast loyalty to his role in LA and the university."**

*Professor Jim Diana*



Photo by Chiden & Egg Pictures

## honoring GRACE LEE BOGGS

Long-time activist Grace Lee Boggs, a friend to the school's Environmental Justice field of study who gave talks at the school from the program's inception, died October 5, 2015. She was 100.

**"If we don't create new dreams, new images of the future, we are not challenged to struggle. And hope dies. We need new dreams to struggle for, to challenge us to struggle. Principles of environmental justice can help everybody, but particularly Americans, to get a deeper grasp of the world that we're living in. We're on the threshold of a new kind of revolution, which is also an evolution to a new stage of humanity."**

*Grace Lee Boggs*

# Standing up for Flint's children

BY SARA TALPOS





"THIS WATER CRISIS,  
IS AN ENVIRONMENTAL  
JUSTICE ISSUE BECAUSE  
THESE FAMILIES HAVE A  
LACK OF CONTROL OVER  
THEIR HOUSING STOCK."

## ALUMNA MONA HANNA-ATTISHA BUILDS ON AN SNRE TRADITION OF ENVIRONMENTAL JUSTICE RESEARCH AND ADVOCACY

This past fall, Flint pediatrician Mona Hanna-Attisha (BS '98, MPH '08) made an alarming discovery: The number of Flint children with elevated blood-lead levels had nearly doubled in the months since the city ended its contract with the Detroit Water and Sewerage Department. For nearly a year and a half, the city had drawn its water from the Flint River, despite concerns of local residents, some of whom reported cloudy and foul-smelling liquid flowing from their faucets. State officials maintained that the water was safe, but Hanna-Attisha could think of no other way to account for the marked increase in blood-lead levels revealed by her own study.

Hanna-Attisha, an assistant professor of pediatrics at Michigan State University, called a press conference on September 24 to announce her findings. She and her team at Hurley Medical Center in Flint, where she practices medicine and directs the pediatric medicine program, had scrupulously reviewed the data. Still, spokespersons from the governor's office and the Michigan Department of Environmental Quality (MDEQ) dismissed the results. "When the state is telling you you're wrong, no matter how confident you are in your work, you second guess yourself," she said. "But we knew the numbers had incredible implications for an entire population, so we had to stand our ground."



HANNA-ATTISHA

The following week, state officials reanalyzed their data and conceded that the Hurley study's findings were correct. In the wake of these developments, Genesee County declared a public health emergency. Flint water—switched as a cost-saving measure under a state-appointed emergency manager—was reconnected with Detroit's system. Governor Rick Snyder issued a formal apology to the city of Flint, and the director of MDEQ resigned, along with a department spokesperson. Meanwhile, Flint's new mayor declared a state of emergency, requesting federal funds to address the long-term effects of lead exposure on the city's children.

It's tempting to say that one person—a pediatrician whose clinic serves the highest number of Medicaid patients in the county—brought change to a broken system when she sounded an alarm bell. But Hanna-Attisha credits a constellation of people who have influenced and supported her work, including those she encountered as an undergraduate at SNRE, where she developed an enduring concern for environmental justice.

### SNRE ROOTS

"SNRE was the perfect fit," said Hanna-Attisha, "a small school within a big school. I really loved the close-knit environment, the small classes where people had that altruism and cared for things bigger than themselves." She was especially influenced by a course in environmental justice, a field that

QUAYANA TOWNS TOOK PHOTOGRAPHS AS DR.  
HANNA-ATTISHA EXAMINED HER DAUGHTER,  
TAEYANA, AT HURLEY CHILDREN'S CENTER IN FLINT.



HANNA-ATTISHA AT THE U-M SCHOOL OF PUBLIC HEALTH ON FEBRUARY 3, 2016. SHE WAS PART OF A SEMINAR ON “FLINT DRINKING WATER CRISIS: BACKGROUND AND NEXT STEPS”

emerged in the 1980s, when residents of Warren County, North Carolina, protested the placement of a PCB landfill in a predominantly African American area. The protests made national news and led to the publication of a report sponsored by the United Church of Christ, *Toxic Waste and Race in the United States*. That report found that across the U.S., race was the best predictor of the location of hazardous waste facilities.

“In the 1980s, we tended to talk about environmental problems as problems that affect everybody equally,” said Paul Mohai, professor and cofounder of SNRE’s Environmental Justice Program. “But here was a report saying . . . some people are more impacted than others.”

The report was given to Mohai by Bunyan Bryant, now an SNRE professor emeritus. In the late 1980s, the two professors collaborated on research projects and organized a national conference, which ultimately persuaded the EPA to develop a set of draft recommendations acknowledging the need for environmental justice policies. At SNRE, Mohai and Bryant developed environmental justice courses, and in 1992, they co-founded SNRE’s Environmental Justice master’s program—the only such program in the country.

Bryant and his undergraduate course deeply influenced Hanna-Attisha. “These were tough topics and he was a national leader,” she said. “I remember his being an incredible role model, one of the only people at that time who was talking about this.”

Environmental justice is intertwined with her current work as a physician. Nationwide, people of low socioeconomic status and communities of color are more likely to experience negative environmental health impacts. Inner city children, for example, are disproportionately affected by lead poisoning, primarily from lead paint and dust, often found in old, deteriorating homes.

Lead in drinking water also poses a potential problem in older cities with lead pipes. It is standard practice for these cities to add chemicals that prevent corrosion so lead does not leach into the water. In Flint’s case, the chemicals were not added at the appropriate time. This water crisis, explained Hanna-Attisha, “is an environmental justice issue because these families have a lack of control over their housing stock.”

## A SIMPLE STUDY

“I love my work and what I do.” Hanna-Attisha is passionate about children, and she energetically advocates for them in the midst of the unfolding news story, intensely covered by the *Detroit Free Press*, Michigan Radio, the *Rachel Maddow Show*, and most recently, the national news media and presidential candidates.

Her involvement in the Hurley study began in late August 2015, when a friend, an environmental engineer, asked her if someone had checked the blood-lead levels of Flint’s children. Following up, Hanna-Attisha tried to obtain records from the state and from the county



health department. When things moved slowly, she and her Hurley colleagues examined the blood-lead levels of children in their own clinic. What they found was unsettling. The group contained a relatively high percentage of children with elevated blood-lead levels, albeit with a sample size too small for drawing larger conclusions. Fortunately, Hurley's facility processes most of the lead-level labs in the county. Hanna-Attisha and her team received IRB approval to obtain the additional lab results, significantly increasing their sample size.

"We had natural case and control groups," explained Hanna-Attisha. "We had all the kids who were getting Flint water and then we had all the kids outside of the city." The Hurley team compared the two groups before and after the switch to Flint River water. "This was probably the easiest research study I've ever done," remarked Hanna-Attisha. "Just a simple comparison."

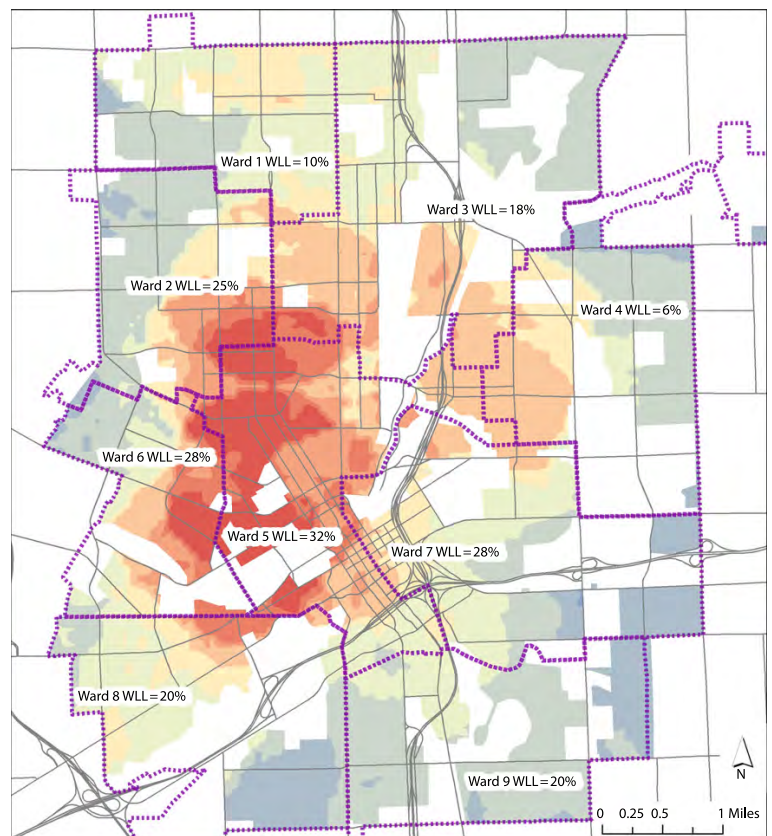
Unfortunately, the aftermath is anything but simple. Many questions remain about why government officials failed to identify problems sooner, and how this crisis should be addressed. And while the American Academy of Pediatrics has repeatedly stated that there is no safe level of lead in a child, no one can say precisely how Flint's children will be affected in the long run. Even low levels of lead in the blood are associated with neurological problems, such as lowered IQ, higher rates of ADHD, and hearing impairment.

## NETWORKING

When asked how to bring change to a broken system, Hanna-Attisha had two pieces of advice. First, seek work that you're passionate about. Second, "Consider the power of network." When she began at Hurley, Hanna-Attisha could not have predicted her eventual role in calling attention to Flint's water crisis. But when she came forward, she had a network of people to support her: hospital administrators who knew she was a competent researcher-clinician; pediatricians who knew her as a board member of the Michigan branch of the American Academy of Pediatrics; even state legislators who had worked with her in the past.

Her advice for students: "If you're hesitant about whether you should go out at night for a lecture on campus, go out—do that thing. Talk to people." (That interdisciplinary spirit is encouraged at SNRE.) You never know whom you're going to work with, or what disciplines you'll need to learn from. The blood-lead study began at the suggestion of an engineer, a water expert, who cared about kids.

For her part, Hanna-Attisha plans to continue working at Hurley while also putting pressure on the EPA to strengthen the federal Lead and Copper Rule, which regulates lead release from plumbing. She has already visited DC to testify. "If you are at SNRE, you are innately altruistic and you want to make a bigger difference." That, she said, should never end. 🌱



**Predicted BLL Based on Ordinary Kriging (µg/dL)**

\*Nonresidential zones screened from results

BLL = blood lead level; WLL = water lead level.

Source: AJPH report - Elevated Blood Lead Levels in Children Associated With the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response



**READ THE READ THE AMERICAN JOURNAL OF PUBLIC HEALTH REPORT:**  
<http://bit.ly/watercrisisreport>



**WATCH DR. HANNA-ATTISHA'S SPEECH AT THE SCHOOL OF PUBLIC HEALTH:**  
<http://bit.ly/flintcrisisvideo>

# DEAR FRIENDS:

**I**n my first year as SNRE's Assistant Director for Alumni Relations and annual giving, I've met so many amazing graduates all across the country. I'm constantly in awe of your stories, from decades-old memories of traipsing around Saginaw Forest to the up-to-the-minute impact of your current careers. What all of you have in common is this: Your SNRE education fueled a passion for sustainability and environmental leadership that has taken you around the world in relentless pursuit of protecting the health of our planet and its inhabitants.

To each and every one of you, I offer gratitude. You've proven yourselves as leaders and best, true examples of the University of Michigan's reputation. My goal is to keep you connected to SNRE, to offer you ways to stay informed and involved in your alma mater's mission and evolution.

You can play a role in defining where our school goes next, you can help our vast network flourish around the world, and enjoy the famous SNRE camaraderie through events happening in the Dana Building and beyond. Consider this an open invitation to take part everything our school has to offer.

Alumni like you are supporting students through internships and career mentoring, sharing your story in *Stewards* or our e-newsletter, SNRE Connect, building connections through regional meet-ups, and spreading the word about SNRE to colleagues and prospective SNREds in daily conversation, in real life and on social media. Each of these activities helps advance SNRE's mission.

I hope you enjoy reading about your classmates' stories in this issue of *Stewards*. I'd love to hear yours. Please feel free to contact me directly to share memories, career and life updates, or to find out how to get involved. My inbox is always open.

Best,



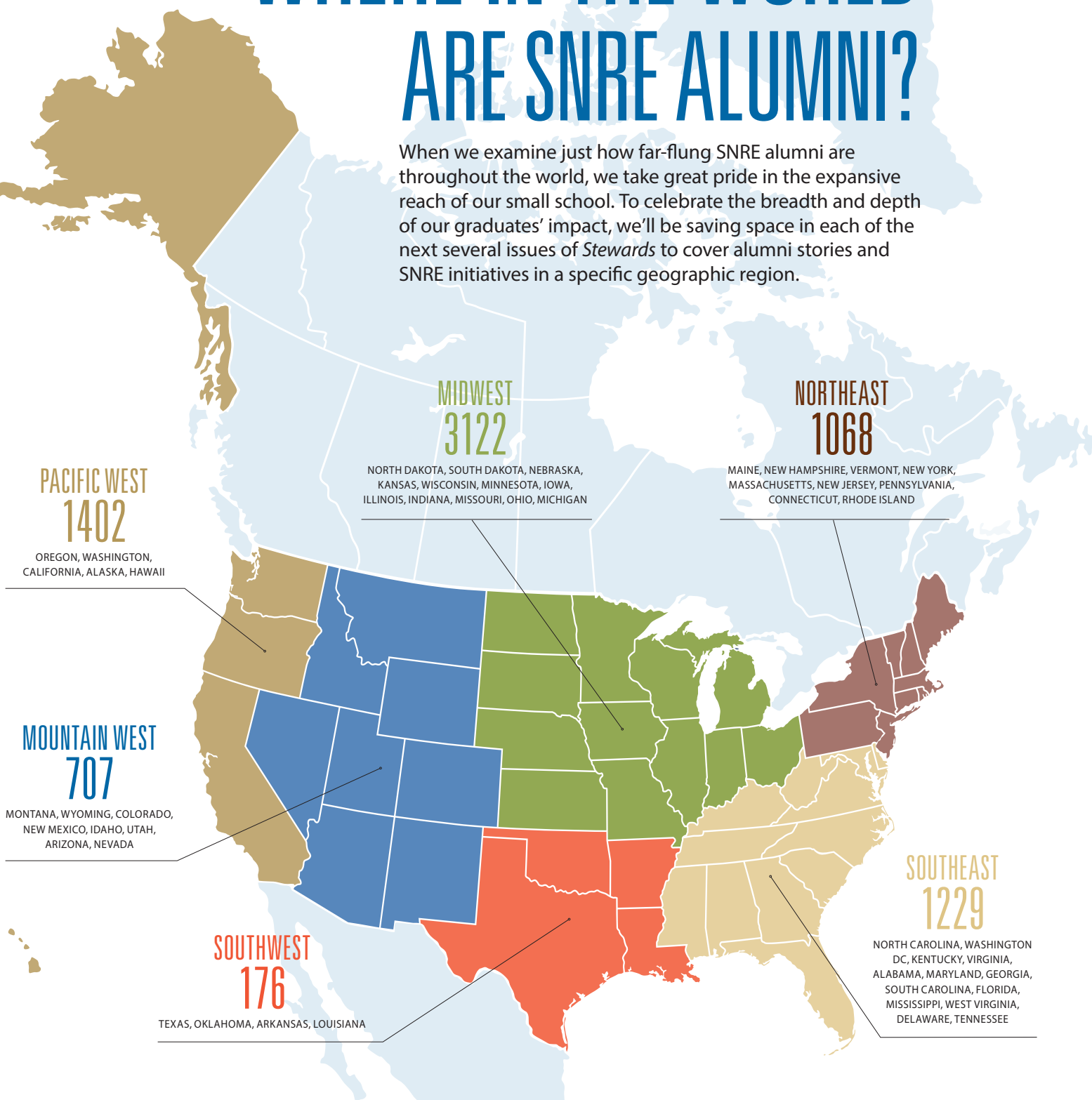
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# WHERE IN THE WORLD ARE SNRE ALUMNI?

When we examine just how far-flung SNRE alumni are throughout the world, we take great pride in the expansive reach of our small school. To celebrate the breadth and depth of our graduates' impact, we'll be saving space in each of the next several issues of *Stewards* to cover alumni stories and SNRE initiatives in a specific geographic region.



## RAISING THE BAR

ALUMNA CREATES SUSTAINABLE BREWERY

KRIS (LUKAS) SPAULDING, BS '97, IN HER BREWERY

Growing up in Holland, Mich., Kris (Lukas) Spaulding, BS '97, always felt close to nature. She was drawn to the lake, her family often took trips to the beach, and she spent hours playing in the forest that was her backyard. Her affinity for nature only grew stronger as she grew older. When Kris came to the University of Michigan as an undergraduate, she began a degree in engineering but soon switched to SNRE, realizing her lifelong affinity for nature.

Shortly after earning her bachelor of science in natural resources and environment, Kris began an 11-year career at Herman Miller Inc., where she learned it is possible to run a profitable business that prioritizes sustainability. At the end of her time there, she was focused on implementing the company's Design for Environment protocol, which ensured that the realities of production were in line with the company's sustainability goals.

With the environmental focus she honed at SNRE and the business model she learned in the corporate world, Kris and her husband Jason, "an experienced brewery owner," decided to combine their passions. The pair created Brewery Vivant around a business model committed to sustainability.

"Sustainability is one of the brewery's core values, and we work to stay true to it in every realm of our business," Kris said.

She and Jason repurposed an old Grand Rapids, Mich., funeral home to serve as Brewery Vivant's location, with patrons sipping craft beer in what was once the chapel. The renovated building was

the nation's first LEED-certified commercial microbrewery, and all equipment uses 100% renewably generated electricity. The brewery plans to launch an onsite solar energy project in 2016 that will account for over a quarter of their annual electricity demand. They package their beer in cans rather than bottles, because the aluminum can is more often recycled and reduces the brewery's carbon footprint.

This sustainability mindset extends to the community at large. Most of Brewery Vivant's customers are local, so Kris and Jason do their best to return the favor.

"We rely on people in the area for patronage, so we give back to them as much as we can," Kris said.

Whenever possible, they use local suppliers and ingredients from local farms. A garden supplies the kitchen with some basic ingredients, but Kris hopes to someday expand that garden into a farm that can provide much of what they need. In addition, all Brewery Vivant employees receive health care, paid vacation time, profit sharing, and other benefits not often found in their industry that make the business a great place to work.

A measure of Kris's success is Brewery Vivant's status as a Certified B Corporation, which means it meets high social and environmental standards.

Kris explained, "At SNRE, I developed a more well-rounded perspective of what it means to be a good citizen of the world." 🌱



# 2 BILLION

## GALLONS OF WATER SAVED BY SNRE ALUMNUS WITH BEHAVIORAL SCIENCE TECHNOLOGY



ROB STEINER (BS '97) ALSO WORKS WITH THE NONPROFIT SPLASH TO BRING CLEAN DRINKING WATER TO CHILDREN LIVING IN URBAN POVERTY.

AS a student in Professor Burt Barnes's Forest Ecology class, Rob Steiner, MS '97, remembers trekking into the woods in the middle of winter during five-hour Friday labs.

"I will never forget the hands-on experience and learning the complexity of the ecosystems surrounding Ann Arbor," the SNRE Environmental Policy and Planning graduate said.

Today, far from those seemingly infinite subzero Michigan winters, Rob lives in Coronado, Calif., where he is witness to the opposite end of the environmental spectrum: drought. But, inspired by his SNRE education, Rob is tackling the problem head on by teaching people the value of water and finding ways to use this precious natural resource more efficiently.

"The upside of the drought is that it has built public awareness of the macro trends in climate change. People see that water is a finite resource we need to use more efficiently," he said.

In 2009, Rob cofounded WaterSmart software, which uses behavioral psychology principles to improve residential water-use efficiency. WaterSmart won the Imagine H2O's inaugural water efficiency prize in March 2010 and has saved more than 2.1 billion gallons of water.

In addition, Rob is managing director for the Summit Water Infrastructure Group (SWIG), an investment group that focuses on water and wastewater treatment and reuse. He also serves on the advisory board of Splash, a nonprofit that aims to get clean drinking water to children living in urban poverty. Splash works with foreign governments, organizations, and businesses in developing countries to bring existing water-purifying technology to scale, providing more equitable access to clean drinking water. Rob was able to see the impact of the organization's work firsthand when he traveled to Nepal and Tibet to install water-purifying systems in schools.

"I am on a mission to use all resources as efficiently as possible, and I attempt to do that in my personal and professional life. I believe we need to reduce our need to use natural resources overall. When we do need them, we must use them as efficiently as possible," he said. ♻️





TAO ZHANG, MLA '08

## LANDSCAPE ARCHITECTURE GRAD SPARKS URBAN RENEWAL IN SHANGHAI

Trained in the hard sciences, Tao Zhang, MLA '08, never imagined that his love for design could play a role in his career. But in SNRE's Landscape Architecture program, one of the nation's few design programs housed within a science school, he found a way to live out his passion for environmental science in a creative way. Here, art and aesthetics are fully integrated with responsible ecology and a deep understanding of human patterns of interaction with the environment.

"To design beautiful public spaces, you need to understand human behaviors while also protecting natural resources," Tao said.

Tao now lives in Boston and works for Sasaki, one of the world's most renowned landscape architecture firms. He recently led the winning team in a competition to design Shanghai's largest public park, which is now being created.

Zhangjiabang Park, projected to spark ecological and urban renewal, combines woodland and wetland habitats that redefine

the natural environment in a city whose residents have a shrinking number of opportunities to experience nature.

"An outdoor park is a living, dynamic space that is constantly evolving and driven by natural processes. The design must be considered from the user perspective, but it also must be respectful of and accommodate the natural system it is part of," Tao said.

His team's design focuses on the existing canal, while improving water quality and rebuilding the biodiversity of the region's aquatic ecosystems. They created several microclimates to contrast with the Shanghai heat and improve the air quality. New transit lines are being built to connect the park to the downtown, facilitate various uses for the park, and increase accessibility.

Tao's science and ecology background, which he honed at SNRE, brings a critical sensibility to his design work. At Sasaki, he strives to make positive changes to the living environment, creating spaces with the sustainability to benefit generations of visitors. 🌱

"TO DESIGN BEAUTIFUL  
PUBLIC SPACES, YOU NEED  
TO UNDERSTAND HUMAN  
BEHAVIORS WHILE ALSO  
PROTECTING NATURAL  
RESOURCES"





## BRINGING TOGETHER ALUMNI, STUDENTS IN NATION'S CAPITAL

Supported in part by the SNRE Class Gift Fund, 22 SNRE students traveled to Washington, D.C., in October to explore career opportunities and connect with alumni working in the nation's capital. The trip was part of the SNRE Career Trek series, which takes students to major U.S. cities for networking and place-based learning.

"This was a great opportunity for students to learn about and hear firsthand the types of jobs and career paths other SNRE grads before them have taken," said student Elena Huisman.

The two-day event included expert alumni panels at locations throughout the city. Students Allegra Wrocklage, Shreyas Vangala, and Vanessa Tamez and Coordinator of SNRE Career Services Lisa Yee Litzenberg moderated the panels:

- Nonprofits and Advocacy, held at the National Sustainable Agriculture Coalition, featuring alumni Elena Takaki '94, Brian Lipinski '09, Greg Fogel '10, and Kathryn Bomey '12
- Ecosystems and Natural Capital, held at Forest Trends, featuring alumni Kat Ridolfi '06, Allie Goldstein '13, and Stephanie Pendergrass Dalke '06
- Stakeholder engagement, held at Pew Charitable Trusts, featuring alumni Christina Pompa '93, Todd Barker '96, Dave Gershman '12, Beth Weaver '00, and Merrick Hoben '99
- Energy and consulting, held at the U.S. Green Building Council, featuring alumni Courtney Yan '13, Laura Bruce Klein '09, Elyse Steiner '01, and Chase Huntley '01
- Federal careers and internships, held at the National Sustainable Agriculture Coalition, featuring alumni Amanda Stone '10, Paul Winters '14, Patrick Gregerson '82, Rakhi Kasat '06, and Katie Chiang '05
- Climate change and adaptation, held at the World Bank, featuring alumni Nate Engle '07, Moushumi Chaudhury '99, James Mulligan '11, Joe Thompson '00, and Kathleen Mogelgaard '04

For Bomey—a writer, editor, and social media strategist for the Nature Conservancy, one of the most popular employers of SNRE graduates—the choice to serve on a Career Trek panel was easy.

"I remember benefiting tremendously from SNRE's Career Services activities when I was a student, so as an alum, it was my pleasure to give back and—hopefully—provide a similarly positive experience for current students," she said.

Students were grateful for the time and attention they received from alumni, and many expressed that the Career Trek opened doors to internships and jobs.

"After the federal careers and natural ecosystems panels, I was able to meet with representatives that I was most interested in without hesitation at all, either directly after the panel or at the evening alumni reception. Each panelist gave me their card and told me to contact them when I am looking for a job. It was very reassuring," said student Montana Krukowski.

The evening alumni reception at the 201 Bar drew a crowd of more than 100, including D.C.-based grads, SNRE Interim Dean and Professor Dan Brown, and the Career Trek students. The following day, students met one-on-one with alumni to deepen their ties.

"Some alumni introduced me to potential internships and are willing to recommend my resume based on the caliber of the SNRE program," said another student.

Earlier this year, a similar Career Trek event was held in Chicago, and plans are in the works for more. To get involved with networking events in your area, contact SNRE Assistant Director of Alumni Relations Nicole Ver Kuilen at [ncverkui@umich.edu](mailto:ncverkui@umich.edu). 📍

## CLASS NOTES

**Carl Jordan, BS '58**, is professor emeritus at the University of Georgia Odom School of Ecology. He joined the Institute of Ecology in 1974 to participate in an international study of the Amazon rainforest in Venezuela. Carl is the founder of Spring Valley Ecofarms in Athens, Ga., focused on research and educational outreach to promote sustainable agriculture and the restoration of soil organic matter.

**Gene Lasch, BS '62**, published *High Adventures: True Life "High" Adventure Encounters*. Rather than a bucket list, Gene has a "frog list" of everything he needs to do before he croaks. He's down to the final two experiences on that list.

**Jerry Longcore, MWM '63**, volunteers for the Orono Bog Boardwalk, a 4,800-foot, wheelchair-accessible wooden walkway over a natural wetland in Bangor, Maine. It passes through a mixed wooded fen and then loops around a northern peat bog. Jerry has spent much time fundraising, serving as a docent, and providing the physical labor for the boardwalk's extensive renovation.

**Mothanna Taha Al-Hoory, BS '66, MS '67**, is professor of tourism and business management at Al-Zaytoonah University of Jordan. She shared this photo of students, professors, and staff at Camp Filibert Roth in the summer of 1964. Al-Hoory is in the second row, third from the right, and the picture also includes Professors Carow, Knight, and Sharp.



**Mike Rechlin, BS '68, MS '73**, recently published *Maple Syrup: The Science and Art of Sugaring*. The book comes 40 years after Mike taught the "Stalking the Syrupy Sap" class as an SNRE graduate student, during which he spent time in the Ann Arbor sugar bush.

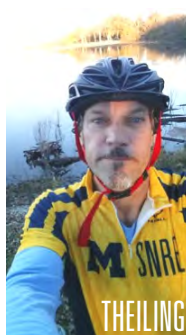
**Craig Osteen, BS '71**, retired after 36 years with the USDA Economic Research Service. He is living in Arlington, Va.

Two decades of cold fusion research by **Dan Zavela, MRP '74**, and his research partner, James A. Patterson, inspired a recent breakthrough by Andrea Rossi in Italy. Rossi invented a cell he calls E-Cat (energy catalyzer), with the potential to produce clean, limitless power that can help protect the Earth from climate change due to pollution. Zavela and Patterson demonstrated a working prototype cell producing 400% excess power in Monte Carlo at ICCF 5 in 1995.



**Michael K. Dorsey, BS '89, PhD '05**, testified before the U.S. House Committee on Natural Resources in July 2015 as part of a hearing, "An Analysis of the Obama Administration's Social Cost of Carbon." Michael is cofounder and vice president for strategy and operations U.S. Climate Plan, and interim director of the Joint Center for Political and Economic Studies.

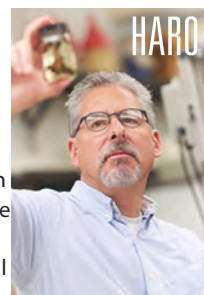
**Chuck Theiling, MS '90**, is a large-river ecologist on the upper Mississippi River. He has spent the last 15 years with the U.S. Army Corps of Engineers, Rock Island District, in Illinois and Iowa. He participates in river, floodplain, and watershed ecological model research and development, coordinates with agency partners, and implements large scale river restoration projects. Chuck is currently investigating innovative hydroponic



phytoremediation tools to mitigate nutrient runoff from contemporary Midwest agriculture practices. He shared this photo in his SNRE cycling jersey, taken looking upstream at the upper Mississippi River Lock and Dam 14.

**Christopher Sneddon, MS '93**, published *Concrete Revolution: Large Dams, Cold War Geopolitics, and the U.S. Bureau of Reclamation* (University of Chicago Press, 2015). He is professor of geography and environmental studies at Dartmouth College.

**Roger Haro, PhD '94**, received the Wisconsin Professor of the Year award from the CASE/Carnegie Foundation. He has been teaching at UW-La Crosse since 1996, with an emphasis on experiential learning. Roger is currently a professor of biology specializing in freshwater ecosystems. Each year, he brings his students to the University of Michigan as part of the McNair Scholars Program. Roger told SNRE that his honors rests with the excellent mentoring and education he received while completing his doctorate.



**Yuka Makino, MS '94, PhD '09**, is senior natural resources management specialist for the World Bank. Yuka recently returned to SNRE to participate in the Global Environmental Careers panel discussion.

**Kristen Sarri, MS/MPH '97**, was nominated by President Obama as assistant secretary of the interior for policy, management, and budget. In her new role, she oversees the department's \$12 billion budget, human resources for its 70,000 employees, and various other administrative and programmatic matters.

**Kimberly Sheldon, BS '00**, accepted a position as assistant professor of ecology in the Department of Ecology and Evolutionary Biology at the University of Tennessee. She will begin her appointment in August 2016. Kimberly's research interests include tropical ecology, conservation biology, and thermal physiology. She thanks the wonderful faculty and friends she had as an SNRE student; their support and enthusiasm encouraged her and influenced her research path.



**Rebecca Meuninck, BS '02**, is campaign director for the Michigan Network for Children's Environmental Health.

**Ajay Gupta, MS/MBA '03**, runs Sport365, which hosts running, obstacle race, triathlon, and other athletic events throughout India. Ajay also helps run an educational services company that manages K-10 schools.

**Nicole Rom, MS '04**, was named to Midwest Energy News "40 under 40" list of emerging leaders accelerating the United States' transition to a clean energy economy. She has been executive director of Climate Generation: A Will Steger Legacy since 2006, starting and sustaining the organization by providing vision and development.



**Kerry Duggan, MS '06**, is associate director for policy at the White House, where she serves as energy and environment policy advisor to Vice President Joe Biden.

**Roy Gothie, MS '07**, is statewide bicycle and pedestrian coordinator for the Pennsylvania Department of Transportation in Harrisburg. He serves on state, regional, and national committees and task forces, and interacts with municipal officials, legislators, transit agencies, and professional and advocacy bicycle/pedestrian organizations. The focus of his position is improving safety,



education, and community health.

**Charlotte Mack-Heller, MS/MPP '10**, joined the International Economic Growth Division of Abt Associates in Jakarta, Indonesia, and is also part of its domestic climate change group, which includes Stratus Consulting.

**José Miguel Friz, MS '12**, is executive director of the Universidad Adolfo Ibáñez Center for Business Sustainability in Santiago, Chile. He continues with his consultancy firm. Jose and his wife, Maria, are the proud parents of a beautiful baby girl, Victoria.



**Dan Miller, PhD '13**, began a new position as assistant professor in the Department of Natural Resources and Environmental Sciences at the University of Illinois at Urbana-Champaign.

**Hannah Erickson, MS '13**, is founder and principal of Adaptive Philanthropy, a boutique consultancy that supports donors, impact investors, and foundations in implementing more adaptive and effective impact strategies. Hannah recently returned to SNRE to participate in the Global Environmental Careers panel discussion.

**Samantha Wolf, MS '13**, was recently hired as the urban lumber and forestry projects coordinator for Clackamas County, Ore. She will be working on special projects related to county forestry, urban forestry, and an innovative urban forest pilot program development. She is excited to use the skills and knowledge she gained at SNRE. Samantha and her husband are also excited for the arrival of their first child, a baby boy, this April.

**Liz Munn, MS '14**, is sagebrush ecosystem program manager for the Nature Conservancy. She works in the organization's Reno, Nevada, office.

**Alexandra "Lexi" Brewer, MS '15**, is sustainable development program manager for Futurewise, where she focuses on issues related to climate change and community resilience. Her projects include community outreach and engagement and policy analysis.

## IN MEMORIAM

**Douglas Edward Sell, BS '77, MLA '80**, died December 23, 2015. Pursuing his love for the land, trees, and open space, Doug and his wife Katina, MLA '80, opened their own landscape architecture practice in St. Paul, Virgin Islands. Doug was heavily involved in the Rotary Club, starting the Rotary Club of Charlotte Amalie and later becoming a charter member of the Rotary East Club, serving as secretary. He will be remembered for his love of history, archery, and bow hunting, and for avidly following Michigan football.

**Peter Daniel Shemitz, MS '90**, died July 2, 2015. Pete worked for the City of Kansas City, Mo., and later for the Missouri Department of Natural Resources and Lockheed Martin. During his rewarding career, he joined or created innovative teams working toward sustainability in individual applications or the civil and commercial infrastructure. He will be remembered most for his love of nature and passion for sustaining and improving the environment.

## SHARE YOUR NEWS

Send us updates and photos about your new job or personal achievements. Visit [snre.umich.edu/alumni](http://snre.umich.edu/alumni) and fill out our online update form or write to:

School of Natural Resources & Environment  
Attn: Office of Communications  
440 Church Street  
Ann Arbor, MI 48109-1041

We look forward to hearing from you and spreading your news.

# DEAR FRIENDS:



In the early 1970s, I was an SNRE forestry student working hard not only in the classroom, but also at various jobs to make ends meet. At one particularly stressful time financially, I learned I'd won the Mrs. F. Gordon Davis Scholarship, an award of \$125. I remember being so grateful for receiving help when I needed it most.

This award changed my life in the short term—and forever. It bought me time and stability to focus on my studies, and it inspired me to pay it forward as soon as I could. When I got my first job as a forester in Arkansas, I was making \$11,000 a year. But right away I earmarked less than 1 percent of my salary to help other Michigan students and, with my good friend Bruce Brown, created a scholarship that's still around today. In fact, what was a drop in the bucket back then has grown into a sizable endowment.

I'm a firm believer that what you give is returned to you many times over. My wife, Carolyn, and I have had the good fortune to support dozens of SNRE students through fellowships, as well as research initiatives and special projects. I attribute much of my success in life to this philosophy of philanthropy. None of us achieves what we do without the help of many others. Please consider helping SNRE with a gift to our capital campaign. Your donation of any amount shows our students and faculty researchers that you stand behind their ideas, believe they can change the world, and that you are eager to see what they do next.

Sincerely,

Peter Mertz  
BSF '74, MBA '81  
SNRE Campaign Chair

## DEAN'S FELLOWSHIP CHALLENGE AIMS TO BOOST STUDENT SUPPORT

Scholarships are a powerful way to create a personal legacy. They also serve as a source of motivation and inspiration for students, alumni, and fellow donors. The Dean's Fellowship Challenge is a unique and exciting initiative focused on promoting academic excellence and fostering student-alumni connections at SNRE. Student beneficiaries are in direct contact with the generous donors who support them.

Because full student fellowship pledges will be matched by SNRE at 100%, giving to the Dean's Fellowship Challenge is a significant way to invest directly in the next generation of environmental leaders and help sustain SNRE's vibrant learning, teaching, and research community.

Donors may establish a Dean's Fellowship by making a five-year pledge of \$5,000 or more per year. At this level, pledges will be matched 100% by SNRE, giving recipients a \$10,000 annual fellowship. Alternatively, donors may elect to contribute to an existing Dean's Fellowship by pledging at least \$1,000 per year for five years.

### Full student fellowship – 5-year pledge

- \$5,000/year x 5 years
- Matched 100% by SNRE to produce a \$10,000 annual fellowship for a deserving SNRE student
- You will hear directly by mail or email from your student beneficiary
- You will have the opportunity to name the fellowship

### Student support – 5-year pledge

- \$1,000/year x 5 years
- Contribute to a scholarship, along with fellow donors, to assist a student with financial needs
- You will hear directly by mail or email from your student beneficiary

Gifts to the Dean's Fellowship Challenge will have an immediate impact, helping SNRE continue the tradition of preparing the leaders and best in environmental problem solving. You, along with other benefactors, will help ensure that a broader community of students has access to financial support.

To learn more to make a gift, contact Scott Bertschy, director of development and alumni relations, at 734-615-0315 or [bertschy@umich.edu](mailto:bertschy@umich.edu).



# student VOICES

## MATT GACIOCH



### **Environmental Policy and Planning, Class of 2016**

"I can only begin to describe my gratitude for my selection and funding as an award recipient. This generous donation enabled me to spend a summer interning at an organization that has captivated me for many years: the Rocky Mountain Institute. It was extremely gratifying to have the opportunity to join that organization with support."

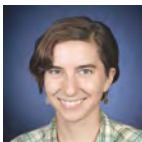
## KEVIN LI



### **Conservation Ecology, Class of 2015**

"I am humbled that my work in bridging design, ecology, and society has been recognized with award funding. I chose U-M because its landscape architecture program is uniquely housed in SNRE, which is in line with my conviction that conservation and the design of landscapes should be firmly grounded in ecology."

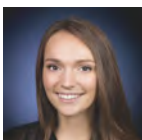
## STEVIA MORAWSKI



### **Conservation Ecology, Class of 2016**

"Award funding has made such a difference for me. Because of donor funding, I was able to spend a summer doing stream restoration projects with the District Department of Energy & Environment in Washington, D.C., where I hope to work after graduation."

## KENDRA MOFFETT



### **Sustainable Systems, Class of 2016**

"It is an incredible honor to be selected for a fellowship. Thanks to this opportunity, I was able to return back to my home state of New Hampshire for a summer and enjoy the spoils of the Granite State while gaining a unique, invaluable, and hands-on work experience as an intern with myAgro, a vibrant nonprofit committed to sustainable agriculture and development."

## NICOLE MUENCH



### **Behavior, Education, and Communication, Class of 2016**

"I am incredibly grateful to have received an award as well as its contribution to my tuition. It's very important to me that the average citizen has the opportunity to learn about and understand today's research on local environments. I've been working on several projects through SNRE that are helping me accomplish that goal."

## ELLIOT NELSON



### **Conservation Ecology & Behavior, Education, and Communication, Class of 2016**

"Because of award funding, I was able to pursue a truly meaningful summer internship working on a birding trail and conservation plan for a rural area of northern Michigan. I truly believe that my work there will go into securing conservation efforts within one of the world's most undisturbed and pristine areas of boreal forest."

## ANDREW SELL



### **Landscape Architecture, Class of 2017**

"The award I received allowed me to conduct site visits and interviews with plant collection managers at six renowned botanical gardens and arboreta to find out their restoration practices, plant propagation programs, and trial use of native plant cultivars."

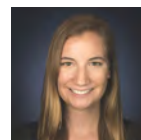
## SAMANTHA SHATTUCK



### **Environmental Justice and Environmental Policy and Planning, Class of 2015**

"I am honored to represent Professor Bunyan Bryant's legacy in SNRE and the environmental justice movement at large. SNRE has a historical place in environmental justice research and activism and that attracted me to this institution."

## ALLEGRA WROCKLAGE



### **Environmental Policy and Planning, Class of 2016**

"Fellowship awards provide invaluable support to SNRE students like myself who are pursuing studies in climate change mitigation. With the help of this award, I am looking forward to continuing to pursue my master's project research the protection and sustainable management of boreal forests in Eastern Europe."



## COFFEE CRUSADERS

Tracking “la roya,” the fungus that’s destroying coffee crops, is about saving more than just your morning eye-opener. SNRE Professor Ivette Perfecto and her research partner, John Vandermeer of U-M’s Department of Ecology and Evolutionary Biology, are working to save the lifeblood of the communities supported by this economic engine. Spreading across Mexico and Central America with alarming speed, the fungus has caused more than \$1 billion in crop losses in recent years and has left hundreds of thousands of people jobless.

“Saving the world with pesticides, that story was told 50 years ago. And we all know it didn’t work,” says Perfecto. “Pesticides basically generate more problems than they solve.”

Vandermeer and Perfecto are among the founders of a field called agroecology. The big questions they’re trying to answer are: Does biodiversity matter and why? How does it affect agriculture? And what kind of impact does farming have on biodiversity?

PROFESSORS IVETTE PERFECTO AND JOHN VANDERMEER HAVE BEEN STUDYING COFFEE IN MEXICO FOR NEARLY 20 YEARS.

“Our philosophy is mostly one of prevention, keeping the farm strong and healthy with a lot of natural enemies that can combat the pests, rather than trying to solve a problem once it has emerged, which has been the approach of agronomists and pest-control management people,” she said. “They are presented with a problem. Let’s look for a solution to the problem. Our approach is: Let’s understand the systems that are working well.” 🌱



**READ THE FULL STORY:**

[global.umich.edu/newsroom/coffee-killer](https://global.umich.edu/newsroom/coffee-killer)



# SNRE EVENTS



EXEMPLARS OF ENVIRONMENTAL LEADERSHIP WILL VISIT SNRE IN THE COMING MONTHS. ALUMNI AND FRIENDS ARE INVITED TO EXPERIENCE THESE EVENTS WITH OUR VIBRANT STUDENT COMMUNITY.

## FEBRUARY 11

Dean's Speaker Series Lecture by **Robin Kimmerer**, founding director of SUNY's Center for Native Peoples and the Environment



## FEBRUARY 25

Dean's Speaker Series Lecture by **Ruth DeFries**, MacArthur "genius" Fellow and author of *The Big Ratchet: How Humanity Thrives in the Face of Natural Crisis*

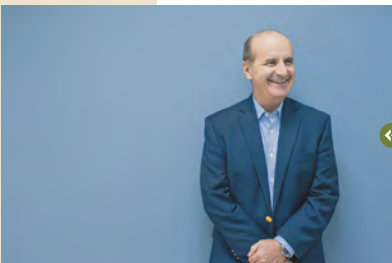


## MARCH 15

Michigan Conservation Speaker Series Lecture by **Steve Palumbi**, director of Stanford's Hopkins Marine Station and author of *The Evolution Explosion: How Humans Cause Rapid Evolutionary Change*

## MARCH 28

Wege Lecture by **José María Figueres Olsen**, chairman of the board of the Carbon War Room and former president of Costa Rica



## EARTH WEEK

A full slate of sustainability-focused events will take place April 17-22, including a film festival and a fun run, planned by SNRE's Student Government



FULL SCHEDULE OF SNRE EVENTS:

[snre.umich.edu/events](http://snre.umich.edu/events)



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# IN THE FIELD

SNRE PHD STUDENT BEN LEE SURVEYS TREES IN THE SAGINAW FOREST

## ARE YOU CONNECTED?

We recently launched SNRE Connect, a monthly newsletter to bring SNREd Nation even closer together. In every issue, you'll read about what your classmates are up to, hear from your favorite professors, find out what's going on in the Dana Building, and learn how to get involved at SNRE.



**Subscribe or update your email address now by contacting [ncverkui@umich.edu](mailto:ncverkui@umich.edu). You don't want to miss the next edition!**