



SPRING/
SUMMER 2010

NATURAL RESOURCES
AND ENVIRONMENT
UNIVERSITY OF MICHIGAN

Stewards

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

MASTERING the Challenge

For nearly 25 years, the interdisciplinary group master's project has defined the academic experience at SNRE

notes from the
BRINK

THE NEXT WAVES
OF RESEARCH



UNIVERSITY OF MICHIGAN

Assessing the SNRE ECOSYSTEM



5

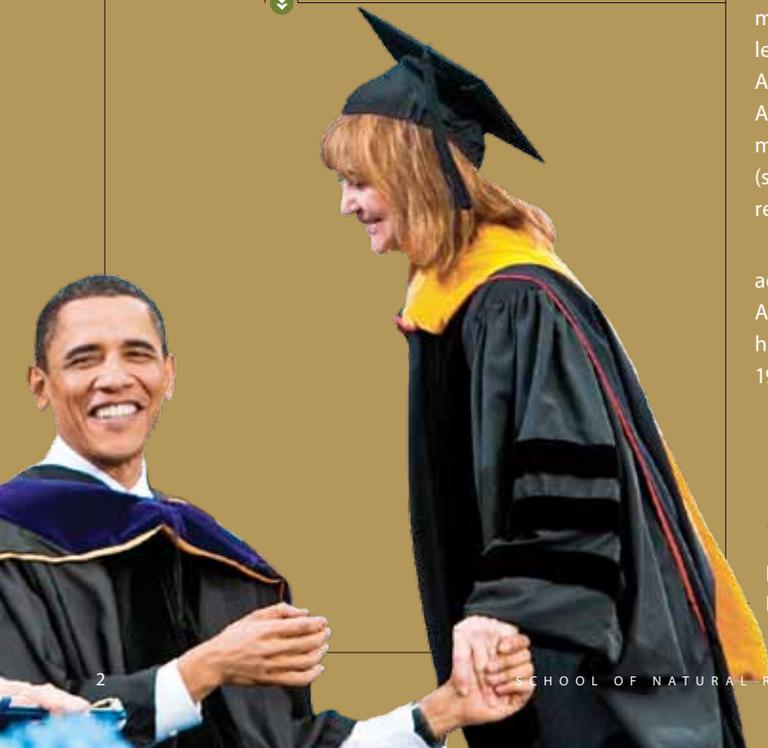


22



26

PRESIDENT OBAMA, WHO NAMED DEAN BIERBAUM TO HIS SCIENCE ADVISORY COUNCIL EARLIER THIS YEAR, GREETES HER DURING COMMENCEMENT CEREMONIES MAY 1 AT MICHIGAN STADIUM.



What a wonderful and memorable academic year we had! The celebration of the 40th Earth Day, President Obama in the “Big House” for graduation, and the creation of the University of Michigan’s first Office of Sustainability highlight a most remarkable year.

Within SNRE, we conducted an unprecedented number of faculty searches and welcomed five new rising stars (page 7). We also had a record number of student applications. The school’s reputation in the national and international community is growing ever stronger and we are truly attracting the “leaders and best” to our ranks.

Further cementing this year’s claim to historic significance were the extraordinary accomplishments of our faculty and students. Many faculty won prestigious university awards (pages 5, 6). And whether measured by the quality of their dissertations, theses, master’s projects or course work, students’ collective skill at interdisciplinary analysis, negotiation and problem-solving continues to astound. I taught the M.S. Core Course on Environmental Assessments and I am very proud that our 160-student “Conference of Parties” achieved consensus on a Climate Treaty—the “Dana Deal.” (It has already been sent on to the U.S. climate negotiating team.) Eight of our graduating students were named Presidential Management Fellows, joining a prestigious program that gives them the chance to work at federal agencies in senior-level positions. For our graduates, working collaboratively across disciplines is already innate. They are able to integrate science, policy and environmental design—a precious ability that is in high demand in the government.

We were honored to have President Obama’s science and technology adviser deliver the Ninth Annual Peter M. Wege Lecture on Sustainability. Not only did Dr. John P. Holdren spend 36 hours on campus, teach six classes and meet with multiple groups of students and faculty, he delivered an insightful lecture to about a thousand members of the Ann Arbor community at Rackham Auditorium. Dr. Holdren invited me to co-chair a White House Summit on Adaptation to Climate Change, which I was privileged to do in late May; in many ways, this latest summit was a sequel to SNRE’s 2007 Climate Summit (snre.umich.edu/climate_change) and will help build the nation’s capacity to respond to the growing impacts of our changing climate.

On May 1, our graduates heard a remarkably poignant and inspiring address at commencement from Dr. David Kaimowitz of the Ford Foundation. After extolling students to use their voices, imaginations and the planet wisely, he quoted a popular slogan adopted by French students during protests of 1968: “Be realistic, demand the impossible.”

Inspiring and appropriate words for our students who will heal the planet!

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

12

For nearly 25 years, the interdisciplinary group master's project has defined the academic experience at SNRE. This year's clients ranged from an organic dairy in the Colorado mountains to a nonprofit evaluating solar projects in the Mojave Desert.

MASTERING the Challenge

20



THE NEXT WAVES OF RESEARCH

With problems ranging from invasive species and lake levels to water diversion and climate change, the Great Lakes are awash in news coverage. To gain further insight into these and other lakes-related issues, *Stewards* spoke with SNRE Professor Jim Diana, who also serves as director of the Michigan Sea Grant College Program.

notes from the
BRINK 24

SNRE alumnus Thane Maynard, in a book with anthropologist Jane Goodall, explores the plight of and hope for endangered species.



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ONLINE AT
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ALUMNI/
CLASS NOTES

26

The 2010 SNRE Environmental Career Fair turned into an alumni reunion, as graduates returned to promote their employers' services and missions and to recruit a new generation of environmental leaders.

GIVING

30

Each year, SNRE alumni and friends help students by supporting the Annual Fund. This year, the fund allowed the school to assist several students, including Eric Chu and Emily Baker. On behalf of Eric, Emily and other recipients, thank you for your continued support.

ON THE COVER

Amanda Stone, Zach Robin, Tyne Hopkins and Chris Nordstrom collaborated with two other students on a plan for sustainable redevelopment in Detroit. See *Mastering the Challenge*, page 12.



STEWARDS

NATURAL RESOURCES
AND ENVIRONMENT
MICHIGAN STATE UNIVERSITY

Stewards

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

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The members of the SNRE Visiting Committee are:

William H. Banzhaf (B.S.F. '67), Martin D. Cargas (B.S. '81), Lisa Delplace (M.L.A. '88), Peter C. Mertz (B.S.F. '74; MBA '81), Mark A. Retzlaff (B.S. '70), Stephen O. Simmons (B.S. '67; B.S.F. '69), Geri Eileen Unger (B.S. '77), Mark Van Putten (J.D. '82), Jeffrey Wyner (B.S. '74) and Mark Zankel (M.S. '94)

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wege lecture series



DR. HOLDREN TALKED ABOUT THE ROLE OF SCIENCE AND TECHNOLOGY IN THE FEDERAL GOVERNMENT TO ABOUT A THOUSAND GUESTS AT RACKHAM AUDITORIUM. TO WATCH THE LECTURE OR DOWNLOAD THE PRESENTATION, VISIT SNRE.UMICH.EDU/WEGE_LECTURE.



SCIENTIFICALLY SPEAKING

Science and technology are playing a larger and more vital role in economic growth, national security and everyday lives of Americans.

More importantly, science and technology investments at the federal level are focused on interdisciplinarity and sustainability, says Dr. John P. Holdren, science and technology adviser to President Obama and director of the Office of Science and Technology Policy in the Executive Office. "The best news for the future of science and technology and sustainability is that we have a president with vision," said Dr. Holdren, who gave the Ninth Annual Peter M. Wege Lecture on Sustainability March 22.

His 45-minute address was part of a two-day visit during which he gave lectures to six classes and met with leading researchers on campus, as well as President Mary Sue Coleman.

Dr. Holdren presented President Obama's views on science and technology, specifically the president's mandate that those areas be central to what the federal government thinks, says and does about the challenges facing the nation. Dr. Holdren also outlined how science and technology investments—through nearly \$147 billion in federal research expenditures—are benefitting the state of Michigan by funding such areas as stem-cell research, fiber-optic networks and new transportation systems.

He joked about the "sustainable flow of national leaders" coming to Washington from Ann Arbor. "The White House is full of Michigan grads," he said. "It's certainly one of this university's many contributions to public service that so many of its graduates are working in the Obama administration." 



Yaffee receives mentor award

Professor Steven L. Yaffee received the 2010 Rackham Master's Mentor Award for his ongoing support of master's students. "I am particularly honored to receive this award because it reflects the judgment of students. I have been very fortunate to have worked with several hundred students who are now leading environmental change across the country," said Professor Yaffee (B.S. '72, M.S. '73), who was voted SNRE Professor of the Year by students in 1999 and in 2009.



YAFFEE

Hoffman wins 'green' prize for sustainability course

Professor **Andy Hoffman** received the national 2009 D. Alfred N. and Lynn Manos Page Prize for Sustainability Issues in Business Curricula. The competition encourages and supports efforts to develop or improve sustainability courses and associated coursework in business school curriculums. His "Green Construction and Design" course was selected for the innovative way it examines sustainability from the perspectives of design, construction and environment.

Brown, Perfecto named Fellows of AAAS

Professors **Dan Brown** and **Ivette Perfecto** were among 10 U-M faculty elected as Fellows of the American Association for the Advancement of Science. Professor Brown was recognized for contributions to the understanding of the consequences of land-use change on ecosystems and human vulnerability via the innovative blending of social and ecological analysis. Professor Perfecto was recognized for contributions to preserving biological diversity, particularly by demonstrating the importance of incorporating agricultural systems in models for conservation of biodiversity.

EJ certificate approved

Building on its reputation as the home of the first major university program in environmental justice and a tradition of commitment to diversity and the analysis of environmental inequities, SNRE will begin offering a graduate-level certificate in environmental justice in fall 2010. The five-course, 15-credit program gives U-M graduate students the opportunity to study relationships between people and their environments; to master research methods for studying safe, sustainable environments; and to engage in communicating environmental justice issues to constituents while helping communities ensure their environments are nurturing and productive. For more information, visit snre.umich.edu/degree_programs/certificate.

Research team begins project to map threats to Great Lakes

A University of Michigan-led research team is creating a comprehensive analysis and mapping of threats to the Great Lakes that will guide decision-making in the United States and Canada for years to come. The project will produce the first-of-its-kind regional synthesis of human impacts on the Lakes, thereby helping regional planners and conservation groups to prioritize their activities. The Erb Family Foundation is funding the \$500,000, two-year project. **Dave Allan**, SNRE associate dean and professor, is the lead project researcher. The project will produce the first high-resolution map of cumulative threats to the Great Lakes, providing a critical tool for catalyzing and coordinating regional conservation efforts.

Zak extends carbon storage, climate work with \$1.8M grant

Researchers led by Professor **Don Zak** received a \$1.8 million Department of Energy grant to study how climate change will influence the activity of soil microbes that decay dead leaves and roots in northern forests. The three-year project gets under way in June in the forests of the Upper Peninsula and in northern lower Michigan, where Professor Zak and fellow researchers have been experimentally manipulating atmospheric nitrogen deposition since 1994. If their preliminary results hold, the study presents the possibility of a decline in the transcription of several fungal genes and the subsequent slowing of plant litter decay under rates of atmospheric nitrogen deposition expected by mid-century that may contribute to a large, and as of yet unresolved, globally important sink for anthropogenic carbon dioxide in the Earth's atmosphere.

SNRE research institute carries on work of Nobel Prize winner

Her theories on economic governance and common property earned Elinor Ostrom a share of this year's Nobel Prize for Economic Sciences, but the political scientist's many ties to SNRE relate to her work in forestry research. Dr. Ostrom founded the International Forestry Resources and Institutions (IFRI) research network in the early 1990s at Indiana University, Bloomington, where she is a professor. One of the doctoral students who attended the institute's founding meeting and conducted its first commissioned research was **Arun Agrawal**, now an SNRE associate dean. In 2004, when her research agenda changed, she began looking for a new home for IFRI's extensive data and analysis related to forestry governance; SNRE was a natural choice. IFRI moved to the Dana building in 2006; that same year, Dr. Ostrom received an honorary degree and spoke at SNRE's commencement.



"IFRI IS THE LONGEST LASTING OF HER RESEARCH PROJECTS," SAID PROFESSOR AGRAWAL, PICTURED LEFT WITH DR. OSTROM, WHO SPOKE ON CAMPUS THIS SPRING AT A 'SCIENCE ENVIRONMENTS IN AFRICA' CONFERENCE.

SHARING THE SPOTLIGHT

Two names familiar to a generation of SNRE alumni shared the spotlight this year during the Dean's Speaker Series. The occasion: their appointments to named professorships.

Professor **Ivette Perfecto** (Ph.D. '89), a 21-year member of the faculty, was named the George Willis Pack Professor, a distinction voted on by her SNRE faculty colleagues. Professor Perfecto will use the professorship's resources to further her research, which is focused on the complex ecological interactions that create the ecosystem service of pest control in coffee agroecosystems, primarily in the new-world tropics. The professorship is named after George Pack, a conservationist, U-M regent and early citizen of the state. The purpose of the chair is the "promotion of practical forest land management in the broadest sense of the term." The prior Pack Professor was Professor Perfecto's mentor John Witter, who recently retired from SNRE.

Professor **Don Zak**, a 22-year member of the faculty, was named a University of Michigan Collegiate Professor. Each Collegiate Professor honoree can designate the award in someone's honor. Professor Zak chose his mentor Burton V. Barnes (B.S.F. '52, M.F. '53, Ph.D. '59), SNRE emeritus professor and world-renowned forest ecologist who worked to understand the biology and ecology of forests; Professor Zak will be known as the Burton V. Barnes Collegiate Professor.

Professor Zak's research examines connections between the composition and function of soil microbial communities and the importance of microbial activity in regulating ecosystem-level processes. He holds a dual appointment with the Department of Ecology and Evolutionary Biology in the U-M College of Literature, Science, and the Arts.

Dean Rosina M. Bierbaum said the school was proud to extend invitations to each to be part of the Dean's Speaker Series, and to use the occasion to further recognize their decades-long enrichment of the school. "SNRE students have recognized those contributions, too, by voting to award each the school's coveted Outstanding Faculty Teaching Award," Dean Bierbaum added. 🍀





professorships

PROFESSOR ZAK (ABOVE) AND PROFESSOR PERFECTO (BELOW) SHARED TOP BILLING JAN. 12 WHEN THEY GAVE LECTURES INAUGURATING THEIR NEW NAMED PROFESSORSHIPS AT THE UNIVERSITY.



NEW FACULTY



CARDINALE



JONES



MILLER



NEWELL



XU

The School of Natural Resources and Environment added five faculty in recent months, with plans to conduct additional searches this fall. "The large number of faculty applications signals that SNRE's reputation in the national and international community is growing ever stronger," said Dean Rosina M. Bierbaum. "Researchers recognize the strengths of working within the broader University of Michigan community and side-by-side with talented students and faculty."

The new faculty are:

Brad Cardinale joins as an assistant professor in January 2011, filling the aquatic conservation ecology position the school posted last fall. Cardinale received his Ph.D. from the University of Maryland; before SNRE, he was an assistant professor at the University of California-Santa Barbara in the Department of Ecology, Evolution and Marine Biology.

Stanton Jones joined the school in February as an associate professor of Landscape Architecture. He has M.L.A. and M.C.P. degrees from the University of California at Berkeley and most recently was a professor and department head at the University of Oregon's Department of Landscape Architecture.

Shelie Miller joins this fall as an assistant professor in energy sustainability. Miller received her Ph.D. in civil and materials engineering from the University of Illinois at Chicago and an M.E. degree in civil and environmental engineering from Clarkson University. Before joining SNRE, she was an assistant professor of

environmental engineering and Earth sciences at Clemson University.

Josh Newell joins this fall as an assistant professor, filling the sustainable built environment position awarded to SNRE as part of the university's cluster-hire initiative. He has a Ph.D. from the University of Washington and currently is a research assistant professor at the Center for Sustainable Cities in the School of Policy, Planning, and Development at the University of Southern California.

Ming Xu joins this fall as an assistant professor in sustainable systems. Xu received his Ph.D. from Arizona State University; before joining SNRE, he was a postdoctoral fellow at the Georgia Institute of Technology.

The school's faculty ranks will grow in the fall as it begins a search to fill a cluster-hire position in the area of sustainable development in Asia and Africa. SNRE has been awarded three cluster-hire positions as part of an initiative started by President Mary Sue Coleman in 2007 to increase interdisciplinary research and teaching. SNRE has partnered on developing positions with four units on campus: the School of Information; the College of Literature, Science, and the Arts; Taubman College of Architecture and Urban Planning; and the College of Engineering.

"We are eagerly awaiting news on this year's submission for the next award cycle—since sustainability is the president's new focus on campus and SNRE is the hub of sustainability," Dean Bierbaum said. 🌱



Helen Graham, a first-year master's student in Landscape Architecture, received the most votes among 96 entries in the 5th Annual SNRE Photo Contest. She took "Avenue of Baobabs" in 2007 during her two years of service with the Peace Corps' environment program in Madagascar. "I caught the sunrise at the Avenue of the Baobabs near Morondava in southwestern Madagascar," Graham says. "The *Adansonia grandidieri* (Grandidier's Baobab) is endemic to Madagascar and is listed as an endangered species."

VIEW ALL THE PHOTO ENTRIES:
snre.umich.edu/photo_contest

PICTURE PERFECT

Rackham honors Duvall, Wolske with GSI awards

Jason Duvall (M.S. '05) and **Kim Wolske (M.S. '05)** received two of the 20 Rackham Outstanding Graduate Student Instructor Awards bestowed university-wide for 2009-10. Nominations were based upon ability and creativity as teachers; service as student mentors and advisers; and growth as scholars in their graduate programs. While doctoral students, both taught graduate-level classes and were associated with the Environmental Psychology Lab at SNRE, directed by Associate Professor Raymond De Young. Duvall recently defended his dissertation.

Duke Foundation awards seven fellowships

The Doris Duke Charitable Foundation awarded fellowships to seven SNRE master's students who show outstanding promise as future leaders in nonprofit or governmental conservation. The 2009-11 SNRE Doris Duke Conservation Fellows are: **Ria Berns** (dual master's degree, master of public policy, Gerald R. Ford School of Public Policy); **Julian Dautremont-Smith** (dual degree, MBA, Stephen M. Ross School of Business); **Jessica Gorchow**; **Rebecca Held**; **Ariel Shaw**; **Kat Superfisky**; and **Tina Tam** (dual degree, MBA, Ross School).

The Doris Duke Conservation Fellowship Program supports master's students at eight leading U.S. environmental schools. As a Duke host program, SNRE normally recommends five candidates. Because extra funding was available, SNRE recommended two additional candidates. All seven candidates advanced by SNRE were awarded fellowships, which provide tuition assistance and cultivate leadership skills through internships, professional and career development programs, and ongoing alumni networking activities. Since its inception, the program has supported more than 300 fellows.

NOAA award allows Benson to expand marine research

Doctoral student **Catherine Benson** was one of seven national recipients of a National Oceanic and Atmospheric Administration award for students studying marine biology, coastal research management and maritime archeology. Benson is researching environmental governance and marine conservation by conducting place-based ethnographic research. As a recipient of the Dr. Nancy Foster Scholarship, Benson is adding two research sites in the Pacific Islands (Hawaii and American Samoa) to data already collected from sites in Papua New Guinea.

honored



bean COUNTERS



PICTURED BEHIND WINNING STUDENT BARRIE ARE, FROM LEFT, HAYSE-GREGSON, MAKHIJANI, COTTER AND LUBERSHANE.

SNRE students combined two passions—helping people and love of coffee—in the aftermath of the January earthquake in Haiti. Four students, led by master’s student Keith Hayse-Gregson, organized a coffee bean-counting fundraiser.

The two-day event took place in the Ford Commons and raised \$987 for Partners in Health, a Boston-based nonprofit that provides a preferential health care option for the poor around the world. A \$5 minimum donation gave participants a chance to estimate the number of beans in five pounds of coffee.

The winner, SNRE student Ben Connor Barrie, took home the coffee, donated by Ann Arbor-based Sweetwaters Coffee & Tea. His winning entry: 15,176, based on an actual count of 15,239. Other event organizers were Andrew Lubershane, Lauren Cotter and Shakuntala Makhijani. And as good scientists, Hayse-Gregson and colleagues ran a statistical analysis (after removing two outliers) on the results: $N=76$, $mean=12,445$, $standard\ deviation=5,802$.

Wyss Foundation selects future conservation leaders

The Wyss Scholars Program for the Conservation of the American West identifies and nurtures a generation of leaders on Western land conservation issues. This year, two SNRE students received Wyss Foundation awards: **Amanda Barker** and **Brittney Van Der Werff**. “While the University of Michigan is not located in the Wyss Foundation’s Intermountain Western focus area, SNRE was chosen to host scholars because of its national reputation and the extraordinary reputation of its alumni who work in leadership positions in conservation agencies and

organizations across the Western United States,” said Steven L. Yaffee, an SNRE professor and director of the Ecosystem Management Initiative.

Eight named as Presidential Management Fellows

Eight SNRE students were named Presidential Management Fellows (PMF) this year. The nationally competitive fellowship attracts students to federal service from varied academic disciplines and career paths. The PMF program provides a two-year paid fellowship with a federal agency; through it, recipients receive accelerated promotion potential. The students (now alumni) are in

the final stages of securing appointments. The recipients are **Becca Brooke** (M.S./MBA ‘10); **Laura Bruce** (M.S./MBA ‘10); **Ashley Burtner** (M.S. ‘10); **Anna Coldham** (M.S./MBA ‘10); **Lauren Lesch** (M.L.A. ‘10); **Michael Sintetos** (M.S. ‘10); **Sarah Tomsky**, (M.S. ‘10); and **Kendra Walker**, Ph.D., Resource Ecology Management.

Carver earns \$50,000 Clean Energy Prize

Adam Carver was part of a student team that won a \$50,000 top prize in the 2009-2010 Clean Energy Prize business plan competition. Carver is pursuing a master of science degree at SNRE and an MBA at the Ross School

of Business. His “Team Enertia” teammates were Tzeno Galchev and Ethem Erkan Aktakka, both Ph.D. fellows at the U-M College of Engineering.

Team Enertia presented a plan for a device to harness vibrations and generate electricity to power small electronics, such as remote sensors and surgically implanted medical equipment.

The competition was open to all Michigan colleges and universities and began with 32 teams representing six schools. The teams were competing for a \$100,000 prize pool. DTE Energy and U-M established the prize to encourage entrepreneurship and the development of clean-energy technologies across the state.

FULLY BOOKED

During the 2009-10 academic year, five SNRE faculty members published books that ranged from textbooks and scientific analysis to sweeping scholarly surveys. Their work represents the school's wide range of research interests, from international climate change and options for sustainable agriculture to urban environmental justice.

CITED

SNRE faculty published more than 115 journal articles this year. Here is a sample:

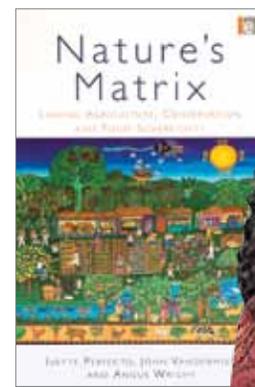
Fish, mussels and toxic transfers

Two notorious Great Lakes invaders — the zebra mussel and round goby—now play a central role in transferring toxic chemicals called PCBs up the food chain and into Michigan's Saginaw Bay walleyes, one of that region's most popular sport fish. The links between zebra mussels, round gobies and contaminated Saginaw Bay walleyes are disturbing examples of unanticipated problems that can occur when non-native species get loose in the Great Lakes, writes fishery biologist and research scientist **David Jude**, lead author of a paper on the topic published in *The Journal of Great Lakes Research*.

Rosina M. Bierbaum, dean

World Development Report 2010: Development and Climate Change
Co-director: Marianne Fay
The World Bank
September 2009

Dean Bierbaum co-directed the World Bank's annual report, which focuses on climate change and development. The report was released in advance of the Copenhagen conference. Understanding what climate change means for development policy is the central aim of the report, which explores how public policy can change to better help people cope with new or worsened risks, how land and water management must adapt to better protect a threatened natural environment while feeding an expanding and more prosperous population, and how energy systems will need to be transformed.



Ivette Perfecto, professor

Nature's Matrix: Linking Agriculture, Conservation and Food Sovereignty
Co-authors: John Vandermeer, Angus Wright
Earthscan Publications Ltd.
October 2009

Nature's Matrix tackles the formidable issue of the conservation of biodiversity, contributing a radical approach that combines science with political realities. Professor Perfecto, whose research focuses largely on Latin America, worked with John Vandermeer (a professor in U-M's Department of Ecology and Evolutionary Biology) and Angus Wright (professor emeritus of Environmental Studies at California State University) to examine the crisis of the loss of biodiversity, the threat to food and agriculture systems, and political unrest in and migration from rural areas. They propose a solution that emphasizes collaboration with small farmers around the globe.

Walking a sustainable path

Coping with global climate disruption and peaking rates of fossil fuel production requires behavior change on a massive scale. Many skills will help individuals deal with this coming transition but none more central than the abilities to problem-solve creatively, plan and restrain behavior, and manage the emotions that result from the loss of an affluent lifestyle, says Associate Professor **Raymond De Young** in an article titled "Restoring mental vitality in an endangered world: Reflections on the benefits of walking" in the recent issue of *EcoPsychology*. These abilities require a mental state called vitality, which can be achieved by following the prescription outlined in the article. In this restored state, individuals have a greater ability to pursue behaviors that heal nature while learning to live well, within limits, on this one planet.

Race, pollution and survey data

African-Americans, particularly in the Midwest, are far more likely to live within a mile of a polluting industrial facility than white Americans, according to a national study by U-M researchers. While evidence linking race and pollution exposure is well known, the new study is the first known national effort to use survey data, which is more detailed than more commonly used census data. "Blacks and [other] respondents at lower educational levels and, to a lesser degree, lower income levels were significantly more likely to live within a mile of a polluting facility," said SNRE Professor **Paul Mohai**, the paper's lead author. The findings appeared in the November supplement to the *American Journal of Public Health*.

Dorceta E. Taylor, associate professor

The Environment and the People in American Cities, 1600s–1900s: Disorder, Inequality, and Social Change
Duke University Press
November 2009

The first of a two-part comprehensive review of the complex relationships between political, economic, social and activist forces; class, race and gender; and public health and urban planning, *The Environment and the People in American Cities* offers an incisive analysis of the growth of American cities from an environmental justice perspective. Associate Professor Taylor, who teaches in SNRE's Environmental Justice field of study, identifies deep historic connections between racism and environmental conditions in a book that is a formidable tome of exhaustive research and a provocative portrait of urban inequality.



Bobbi Low, professor

An Introduction to Methods and Models in Ecology, Evolution, and Conservation Biology
Co-editor: Stanton Braude
Princeton University Press
February 2010

Using hands-on learning, examples from cutting-edge research and carefully designed exercises for students and groups, this undergraduate textbook introduces quantitative models and methods in ecology, evolutionary biology and conservation. It explores the core concepts shared by these related fields using tools and practical skills such as experimental design, generating phylogenies, basic statistical inference and persuasive grant writing. The text is the only one on the subject that features an active and collaborative student approach. Professor Low co-edited the book with biology professor Stanton Braude of Washington University in St. Louis.

Thomas Princen, associate professor

Treading Softly: Paths to Ecological Order
MIT Press
March 2010

In *Treading Softly: Paths to Ecological Order*, Associate Professor Princen offers an alternative to boundless materialism, economic expansion at all costs and the relentlessly drawing down of natural resources. Through examples, suggestions and tools, he proposes a “new normal” of economical and ecological living grounded in the natural world and with an emphasis on self-reliance and satisfying work, rather than the push to simply buy more stuff. *Treading Softly* doesn't make living within collective means easy, but it does make voluntary restraint and valuing resources rewarding.



'Silver spoon' and society

The so-called “silver spoon” effect—in which wealth is passed down from one generation to another—is well established in some of the world's most ancient economies, according to an international study reported in the Oct. 30 issue of *Science*. The study expands economists' conventional focus on material riches, and looks at various kinds of wealth, such as hunting success, food-sharing partners and kinship networks. The team of researchers, including SNRE Professor **Bobbi Low**, found that some kinds of wealth, like material possessions, are much more easily passed on than social networks or foraging abilities.

READ MORE:
snre.umich.edu/newsroom

Local forests and climate change

Studying 80 forest “commons” in more than a dozen developing nations, SNRE Professor **Arun Agrawal** and University of Illinois colleague Ashwini Chhatre found links between local ownership and control of those forests and the fight against climate change. They found that greater local ownership and input into forest management appear to keep these areas, also called forest commons, from being overharvested or otherwise misused, thereby increasing their ability to capture carbon and mitigate or slow the effects of climate change. The findings appeared in an Oct. 5 paper published in *Proceedings of the National Academy of Sciences*.

Human cultures' role in wildlife habitat

Understanding local human cultures is key to preserving gorillas, elephants and other wildlife in African parks and reserves, according to research by SNRE Associate Professor **Rebecca Hardin** and colleague Melissa Remis from Purdue University. In their research, they focus on issues specific to animal species, forest fragmentation, ecotourism, local culture and industry in the Dzanga-Sangha Dense Forest Reserve in the Central African Republic. The forest is known for western lowland gorillas (left) and a clearing that attracts up to 100 elephants at a time. Findings from this research appeared in the December issue of *Conservation Biology*.

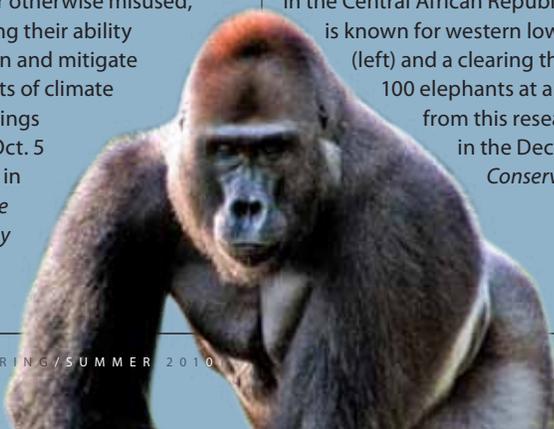


PHOTO BY
OLIVIER ERIC ENDJIZAPOU
VIA PURDUE UNIVERSITY

MASTERING the Challenge

BY LAURA WILLIAMS

For nearly 25 years, the group master's project has defined the academic experience at SNRE. The problem-solving approach is interdisciplinary and applied; clients range from local NGOs to global conglomerates. With this issue, *Stewards* begins an ongoing series exploring what the projects mean to students, the school and the clients served.

THE PLANNER

ELIZABETH DURFEE (M.S., M.U.P. '11)
FIELDS OF STUDY: SUSTAINABLE SYSTEMS,
PHYSICAL PLANNING AND DESIGN (A. ALFRED
TAUBMAN COLLEGE OF ARCHITECTURE AND URBAN
PLANNING)

THE ANALYZER

SARAH FOULKES (M.S. '10)
FIELD OF STUDY:
SUSTAINABLE SYSTEMS

THE BEHAVIORIST

AMANDA STONE (M.S. '10)
FIELDS OF STUDY: BEHAVIOR,
EDUCATION AND COMMUNICATION;
ENVIRONMENTAL POLICY AND
PLANNING



Revitalizing the D

A MASTER'S PROJECT TEAM TACKLES A TROUBLED NEIGHBORHOOD OF DETROIT

Chris Nordstrom became familiar with the Lower East Side of Detroit as an undergraduate at the University of Michigan in the 1990s. When he returned 15 years later as a first-year SNRE Landscape Architecture student in an ecological design course, he was shocked by how the area had disintegrated. "I felt real sorrow that a neighborhood could fall in such disrepair," he said.

It wasn't only the buildings and streets that had changed. "People in Detroit have such a strong will—they'll plow through anything," Nordstrom said. "But when I went back, it felt like people had started to give up. The same people who had defended the city to the death were losing hope."

The course led him to the Fox Creek area of Detroit, then to Jefferson Avenue, the axis of the Lower East Side and one of Detroit's major thoroughfares. East of downtown, Jefferson intersects with Alter Road, the visually dramatic boundary between Detroit and leafy, affluent Grosse Pointe Park. Crossing Alter Road means moving from a neighborhood that is 80 percent African-American, with a median household income of about \$32,000 and an average residential listing price of about \$91,000, into a neighborhood that is 92 percent white, with a median household income of more than \$80,000 and home values averaging about \$500,000.

Faced with the reality of one of the most devastated urban areas in the country, Nordstrom was inspired to send out a school-



URBAN REALITY CHECK: WHILE SOME URBAN REDEVELOPMENT HAS OCCURRED, GRIM REALITIES STILL FACE MOST NEIGHBORHOODS IN DETROIT, THE STUDENTS' MASTER PROJECT REPORT STATED. THEIR STUDY FOCUSED ON DETROIT'S LOWER EAST SIDE, AN AREA OF ABOUT 170 ACRES AND 12,200 RESIDENTS.

wide invitation to discuss a master's project focusing on the area. Of the large group of interested students that showed, a few took a trip to see the site. From there, the interdisciplinary team was formed as Elizabeth Durfee, Sarah Foulkes, Tyne Hopkins, Zach Robin and Amanda Stone joined Nordstrom. SNRE Professor Tom Gladwin and Chester B. Hill, an adjunct lecturer, signed on as faculty advisers. The Sustainable Urban Redevelopment in Detroit master's project was born.

"The interdisciplinary approach was very deliberate," Nordstrom said. "Many Landscape Architecture master's students work with other LA students on their projects. But when I get back in the real world again, I'll be working with people who are coming from different disciplines."

THE FINANCIER

ZACH ROBIN (M.S., MBA '10)
FIELDS OF STUDY: SUSTAINABLE
SYSTEMS, BUSINESS (STEPHEN M.
ROSS SCHOOL OF BUSINESS)

THE BIOLOGIST

TYNE HOPKINS (M.S. '10)
FIELDS OF STUDY: ENVIRONMENTAL
POLICY AND PLANNING; CONSERVATION
BIOLOGY; BEHAVIOR, EDUCATION AND
COMMUNICATION

THE LANDSCAPE ARCHITECT

CHRIS NORDSTROM (M.L.A. '10)
FIELD OF STUDY: LANDSCAPE ARCHITECTURE



The group's client, the Jefferson East Business Association (JEBA), is a nonprofit focused on the sustainable economic development of Detroit's Lower East Side. With community roots dating to the 1970s, JEBA was established in 1994 with help from U-M's Legal Assistance for Urban Communities and began to build relationships with other community groups. JEBA offers classes, neighborhood maintenance and beautification, and a facade-improvement program for businesses. In addition, it is currently focused on development of city-owned and vacant properties and planning for growth.

The Sustainable Urban Redevelopment in Detroit project wasn't the only 2010 master's project grappling with challenges facing the city. Another group designed stations and plans for a proposed light rail for the Detroit Department of Transportation (see story, opposite page); a third examined costs and strategies for electric-hybrid vehicle recharging stations for DTE.

The Nordstrom group considered many ideas for the Lower East Side's vast empty spaces. More than three-quarters of the properties are city-owned or vacant. They toyed with wind farms and urban forestry, but came to focus on a plan that was



DETROIT PROVIDES OPPORTUNITIES FOR MASTER'S PROJECT TEAMS TO ADDRESS ISSUES RELATED TO SUSTAINABLE URBAN REVITALIZATION.

MASTERING the Challenge

The SNRE team developed a plan they hope will serve as inspiration for redeveloping the area in ways that bring in business, increase density, improve public health and ultimately attract new residents—all accomplished sustainably and with an eye on environmental benefits.

"realistic and attainable," as Robin said. The group split up and did an extensive literature review of sustainable development, identifying key national trends, establishing a set of best practices and then selecting the most appropriate goals. The work showed in the final report, which came in at 330 pages.

"The work that the SNRE students are doing is vital as JEBA works with the city, community residents and other stakeholders on the redensification of the Jefferson East neighborhood," said Josh Elling, executive director of JEBA.

Nordstrom began to work on design concepts, mapping the area and analyzing traffic, land use and density. He surveyed the neighborhood by driving every block and taking notes on each property. He remembers one row of three houses in particular.

"I don't think it looked as bad as this in New Orleans after Katrina," he said, describing blown-out walls and trash-covered yards. A woman and a girl were picking through litter on one of the lots; Nordstrom believed they were a mother and daughter living in one of the destroyed houses. He had to pull over and take a break before finishing the survey. "On one hand, you think, 'What could I possibly do?'" he said. "But on the other hand, how can you just walk away and do nothing?"

The SNRE team developed a plan they hope will serve as inspiration for redeveloping the area in ways that bring in business, increase density, improve public health and ultimately attract new residents—all accomplished sustainably and with an eye on environmental benefits.

It wasn't always easy. Group members didn't always agree, and had to educate each other about the approaches of their

respective disciplines. For instance, "it took us a lot time to agree on our idea of 'sustainability,'" Durfee said.

The group placed a much stronger emphasis on economics than first envisioned. "Zach (Robin, a dual-degree student in the Ross School of Business) keeps me grounded. I always want to save the world, and Zach says, 'How are we going to pay for that?'" said Foulkes.

Ultimately, the interdisciplinary team worked. "These guys have pushed me," Nordstrom said. "We have vastly different ideas about sustainability. What's really drummed into our heads as LA students is green-space oriented. But then to hear Amanda speak about education and public health, or Zach talk about business and jobs and generational planning was really, like, 'Wow.'"

The group's client noted their cross-disciplinary strength, too. "I've been impressed by the students' ability to tie together economic development theory, green planning, market principles and urban planning in a comprehensive redevelopment framework for this vital corridor on Detroit's Lower East Side," Elling said.

Their final proposal includes Nordstrom's design concepts, intended to serve as inspiration and help with marketing, as well as detailed suggestions and a roadmap for making their vision a reality through community stakeholders—a key, they agree, to success. "If we can show that our approach works in this neighborhood, others will see it could work in the rest of the city," Nordstrom said. "I think Detroit's going to be an awesome place in 10 or 15 years." 🌱



BEGINNING TO SEE THE LIGHT RAIL

A PROJECT TEAM EXPLORES
TRANSIT-ORIENTED DEVELOPMENT

BY LAURA WILLIAMS

Transforming the Motor City into a pedestrian-friendly spread of bike lanes and light-rail stations might seem nearly impossible, but a group of SNRE master's students has drafted an idea—and a plan.

As Michigan leaders vie for federal funding for a regional transportation system, three Landscape Architecture students and two Environmental Policy and Planning students took on the task of incorporating a light-rail system into the fraying fabric of Detroit. The group's client, the Detroit Department of Transportation (DDOT), charged them with developing sustainable designs for stations along the proposed Woodward Avenue Light Rail. DDOT estimates that the light-rail project, expected to run along Woodward from the city center to its boundary at 8 Mile Road, will cost about \$400 million and be completed before 2015.

The group—Lauren De Silva, Allison Krueger and Angela Lee (all M.L.A. students), Paul Mansoor (Environmental Policy and Planning/Environmental Justice) and Kim Seelye (Environmental Policy and Planning and Urban Planning)—considered the complexities of fitting public transportation into an economy and culture driven by the design, manufacture and enthusiastic use of the automobile. “We want to tap into that historic energy and bring to it our own designs, and preserve the character of the city,” De Silva said.

Advised by Landscape Architecture Assistant Professor Beth Diamond, they soon realized the difficulty in applying principles of transit-oriented development—pedestrian- and bike-friendly streets, mixed-use zoning, high-density residential areas and streetscape design—to Detroit's reality of population decline, vacant properties, high unemployment and political turmoil. “It's been an experience in real-world designing vs. academia,” said Lee. “At SNRE, we're encouraged to think big and go crazy, but we understand the value of responding to real-world conditions to make our ideal visions more approachable.”

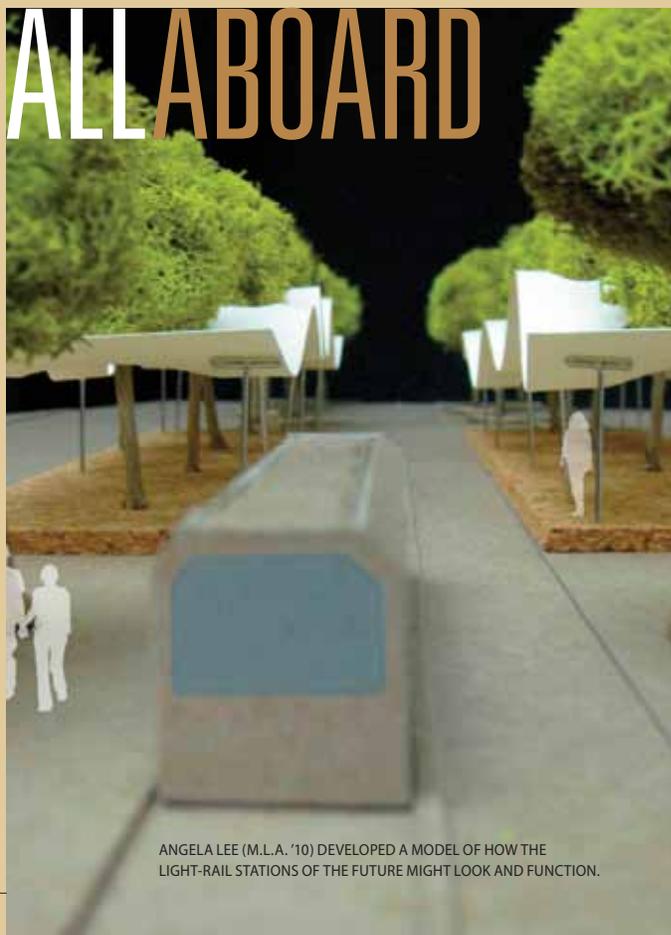
For example, the group considered alternative energy for powering the train, but ultimately proposed that it run on coal. According to Mansoor, the group ruled out solar and wind power (not enough wind in the areas required) as sources to meet the rail's high-energy needs. If the projected 22,000 daily riders were to use the train, carbon emissions from the coal would be far less than those of the commuters' cars, Mansoor said. The plan also includes infrastructure for updating the train as more practical forms of renewal energy become available.

“It's always refreshing to work with students,” said Tim Roseboom, manager of DDOT's Strategic Planning and Scheduling Division. “They tend to think big and want to change the world. I've tried to sensitize them to the ‘way things work’ around here.”

Particularly challenging were the city's “dead zones,” such as the vast empty parking lots where the light rail originates downtown

and the unused former State Fairgrounds near 8 Mile Road. Proposals for these areas include bike lanes and pedestrian walkways, reduced car lanes to slow traffic, a forest planted in the large berms along the expressways and parking lots replaced with gardens and tree farms. Designs for individual stations—the group focused on the first and last stations and the New Center station in the middle—have sustainability features for water management, renewable energy production and reintroducing the natural world to the barren city. “We decided on a combination of big changes, like urban farming in New Center, and small changes, like adding bike lanes,” Krueger said.

The group's work resulted in an imagining of Detroit's population moving from sparsely populated, high-vacancy neighborhoods to condensed, mixed-used communities along transit routes that radiate like spokes from the city's center. The leftover land between those spokes would become “productive zones,” dedicated to alternatives such as urban farming, light industrial use, or recreational facilities. “It's a huge problem, Detroit, and there's not just one solution,” Mansoor said. “That's something we learned.”



ANGELA LEE (M.L.A. '10) DEVELOPED A MODEL OF HOW THE LIGHT-RAIL STATIONS OF THE FUTURE MIGHT LOOK AND FUNCTION.



MASTERING the Challenge

ABOVE: LAURA PALOMBI (AT PODIUM) LEADS FELLOW MEMBERS OF THE RENEWABLE ENERGY PROJECT TEAM IN ANSWERING AUDIENCE QUESTIONS AFTER PRESENTING THEIR RESEARCH AND PLAN ON BEHALF OF THEIR CLIENT, THE WILDERNESS SOCIETY.

SYMPOSIUM

Ten master's teams presented their projects over two days in mid-April. The presentations culminated a year of research and explored a range of challenges, from organic farming and urban teacher education to brownfields and recharging electric cars. In addition to the two profiled on the preceding pages, the other projects included:

Holy Cross Abbey: Planning for a Sustainable Future

Client: Holy Cross Abbey, Berryville, Va.

 Like many religious communities, the Holy Cross Abbey faces such challenges as aging members, declining vocations and economic concerns. The team conducted an assessment of the abbey's property, businesses, behaviors and land-use management. They developed recommendations for the community's buildings, land use, energy use, businesses, pollution, solid waste and recycling, and water use and supply. The project recommends a range of strategies to guide the abbey toward physical, ecological and financial sustainability.

Students: Kathryn Buckner, Craig Cammarata, Charlotte Coultrap-Bagg, Alex Linkow, Jessica Neafsey and Chris Stratman.
Faculty adviser: Andy Hoffman

Greening Brownfield Properties

Client: ExxonMobil Biomedical Sciences, Inc. Houston, Tex.

 By assessing a brownfield site owned by the city of Houston, the team produced a framework for ExxonMobil to evaluate the ecological, financial and social benefits of adopting greening strategies when redeveloping its own brownfield properties. The team developed different "green" landscape designs for the site, assessed the ecological and social benefits of various greening options, and measured the potential change in brownfield property values after conversion into green spaces.

Students: Jennifer Casler, Yang Chen, Joshua Cregger, Scott Kalafatis, Timothy Meernik, Mukesh Patir and Jingyuan Wang.
Faculty adviser: Michael Moore

Students unveil findings, ideas at year-end project event

Residential Electricity Usage in Michigan: Implications of Dynamic Pricing and PHEVs

Client: DTE Energy, Detroit, Mich.

 DTE Energy, one of the largest utilities in the United States, anticipates that demand during periods of peak energy usage—times when consumer-energy use spikes, such as during heat waves—will grow faster than the overall demand for energy, while the cost of providing energy during peaks is higher than during normal periods. With the emergence of advanced meters, plug-in hybrid-electric vehicles (PHEVs), and other new technologies, DTE is exploring ways to change consumer energy use to avoid power outages and reduce costs. In response, the team developed proposals to adjust pricing and lower costs, including strategies for long-term utility-vehicle interface, efficient PHEV charging stations on the power grid and a pricing structure for charging hybrid-electric vehicles.

Students: Arie Jongejan, Brian Katzman, Thomas Leahy and Mark Michelin. Faculty adviser: Greg Keoleian

Charting the Course for Sustainability at Aurora Organic Dairy: Phase 2 Water Use, Nutrient Use and Waste Generation Analysis

Client: Aurora Organic Dairy, Boulder, Colo.

 The environmental impacts of organic food production in the United States have not, to date, been thoroughly researched. This team contributed to the limited literature by developing the first comprehensive life-cycle assessment of a large-scale U.S. organic dairy, producing an analysis that measured energy, water and nutrient use as well as greenhouse gas and waste generation in organic milk production. The report included tools for ongoing environment assessment of operations by the dairy's managers. The team used both established research conventions and novel techniques for quantifying water use, nutrient use and waste-generation impacts.

Students: Jennifer Gough, Amy Kolodzy, Blake Marshall and Dan Wilson. Faculty adviser: Greg Keoleian





+ LEARN MORE ABOUT MASTER'S PROJECTS:
snre.umich.edu/current_students/masters_projects

CHRIS STRATMAN (TOP, FAR LEFT) LEADS MEMBERS OF THE HOLY CROSS ABBEY PROJECT TEAM IN THEIR PRESENTATION. OTHER STUDENTS REPRESENTING VARIOUS TEAMS AT THE MASTER'S PROJECT SYMPOSIUM WERE AMY KOLODZY, CRAIG CAMMARATA AND YANG CHEN (FAR RIGHT)

Renewable Energy in the California Desert: Mechanisms for Evaluating Solar Development on Public Lands

Client: The Wilderness Society, California and Nevada

 The Wilderness Society needed recommendations and guidelines to comprehensively evaluate potential impacts and benefits of proposed utility-scale solar energy facilities in the Mojave and Colorado deserts of California and Nevada. This group of 10 students developed an analysis focused on six areas: the ecological impacts of solar development on species, natural communities and landscape-scale ecological processes; an economic analysis and distributed-generation case study; GIS spatial analysis of site suitability; evaluation of the solar-permitting process and policy incentives for solar development on public lands; socioeconomic impact analysis; and technology impacts of proposed technologies on the environment.

Students: Jesse Fernandes, Natalie Flynn, Samantha Gibbes, Matthew Griffis, Takahiro Ishiki, Sean Killian, Laura Palombi, Nerissa Rujanavech, Sarah Tomsy and Meredith Tondro.
 Faculty adviser: Steve Yaffee

Restoration of a Multi-Functional Landscape: Mill Creek after Dam Removal

Client: Village of Dexter, Mich.

 Since the removal of a dam in 2008, the Mill Creek Park area in the Village of Dexter has undergone significant changes in habitat types, flora and fauna, and recreational and educational opportunities. Considering these changes, this team developed options for maintaining the health of Mill Creek, incorporating the creek into education and recreation, and enhancing the human-nature relationship through professional and volunteer ecological restoration efforts, stormwater solutions and outdoor education and interpretation opportunities. The recommendations build on the existing Mill Creek Park Master Plan and are designed for the Village of Dexter parks and planning staff, Dexter Community Schools and local residents.

Students: Tom O'Dowd, Katherine Hollins, Alison Richardson, Patrick Reed, James John Minesky and Rebecca Gajewski.
 Faculty adviser: Chester B. Hill

A Forest in the City: Exploring Place-Based Education with the U.S. Forest Service (USFS)

Client: United States Forest Service Milwaukee and Chicago

 How can we engage urban teachers in place-based education methods? This study analyzed the feasibility of adapting a place-based professional development program called A Forest for Every Classroom (FFEC) in Milwaukee, Wisc., and Chicago. Methods consisted of a literature review; FFEC program observation; face-to-face and phone interviews and focus groups with teachers, environmental educators, USFS employees and FFEC program coordinators; and the development of a synthesis report. The team assessed the cities' needs for place-based professional development, explored the extent to which FFEC can support the missions and goals of USFS and other stakeholders, and provided recommendations for successful FFEC adaptation and implementation in both cities.

Students: John Cawood, Catherine Game, Annie Gregory, Andrea Liberatore, Ericka Popovich and Mona Younis. Faculty adviser: Michaela Zint

Protected Area Management Effects on Freshwater Conservation

Client: The Nature Conservancy, Northern Michigan

 Historically, the conservation community has assumed that terrestrial-protected area management will result in beneficial improvements to the goals of freshwater conservation. However, as demonstrated by declining freshwater systems around the globe, this assumption may be incorrect. This team sought to determine the extent to which the management of terrestrial-protected areas contributes to freshwater conservation by analyzing key environmental attributes (hydrologic regime, water quality, energy regime, physical habitat, biotic composition and connectivity) in 10 protected areas in northern Michigan.

Students: Drew Casey, Peter Gamberg, Colin Hume, Sarah Neville and Dave Sena. Faculty advisers: David Allan and Allen Burton 

10 QUESTIONS

about the group master's project experience at SNRE

What is a group master's project?

Group master's projects are interdisciplinary, problem-solving experiences conducted by teams of at least four students. Projects offer students a team experience that simulates a future work environment while providing clients with solutions to complex environmental issues. A faculty member supervises the team and its research.

Does every SNRE student participate in one?

Nearly 75 percent of master of science and master of Landscape Architecture students produce a project. Some M.S. students pursue an independent research project (a thesis) or a practicum (a supervised practical application of a previously developed or studied theory). Projects, theses and practicums for completing the requirements of a master's degree are collectively known as opus options. A few students request and receive permission to complete a non-opus option, which involves taking additional classes.

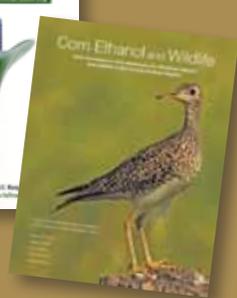
What do the opus options have in common?

They all measure the mastery of academic material; an understanding of the major steps of research design and decision analysis and their application to an environmental problem; the ability to demonstrate critical thinking about an environmental problem; and experience in writing a scientific paper and giving an oral seminar to peers. Faculty evaluation is a core component of each option. They all have the potential to be a springboard to post-graduate work or to careers in government, nonprofit or business worlds.

Do students earn academic credit for their group master's project?

Students receive four credits for completing the master's project and another two for NRE 701. To earn a master's degree from SNRE, students must complete a minimum of 42 credits.

HYBRID ORGANIZATIONS



PUBLISHING PROJECTS:

WORTH READING

What do some master's students do after completing research, presenting projects and submitting a final report to a client? Talk to a publisher, of course.

In recent years, work produced through the master's project experience has found its way into other forms of print. A book publisher may buy the rights to an expanded form or the client can reproduce it as part of a broader communications campaign. These publishing endeavors are in addition to the self-publishing that students often do with a report. Here are three examples of published projects:

→ **High Performance Hospitality: Sustainable Hotel Case Studies**, by SNRE students Michele L. Diener (M.S./MBA '07), Amisha Parekh (M.S./MBA '07) and Jaclyn Pitera (M.S./MBA '09). The book offers a well-reasoned case for the hotel industry to embrace sustainability. It analyzes sustainable hospitality development through eight case studies and addresses best practices of high-performance hotels while presenting a business case for sustainability. Published by the American Hotel & Lodging Educational Institute.

→ **Hybrid Organizations: New Business Models for Environmental Leadership**, by Brewster Boyd (M.S./MBA '09), Nina Henning (M.S./MBA '09), Emily Reyna (M.S./MBA '09), Daniel E. Wang (M.S./MBA '08) and Matthew D. Welch (M.S./MBA '09). In surveying more than 100 companies, they found an emerging breed of company—one that wants to both make money and change society. The book explores trends and lessons learned from these "hybrid organizations" and how the companies are pursuing environmental sustainability missions. Published by Greenleaf Publishing.

→ **Corn Ethanol and Wildlife: How increases in corn plantings are affecting habitat and wildlife in the Prairie Pothole Region**, by Rebecca Brooke (M.S./MBA '10), Gregory Fogel (M.S./M.P.P. '10), Aviva Glaser (M.S./M.P.H. '10), Elizabeth Griffin (M.S./MBA '10) and Kristen Johnson (M.S. '09). Their research showed how government incentives for corn ethanol were driving farmers to shift land into corn production, resulting in significant decreases in grassland bird populations. The publication analyzes current and potential impacts of increased corn ethanol production on wildlife and habitat in a region spanning Iowa, Minnesota and North and South Dakota. Published by the National Wildlife Federation.

masterful idea

In the spirit of the master's experience, members of the SNRE Visiting Committee are starting a project of their own. Their client: students.

The 10-member dean's advisory board is putting together a fund-raising challenge for fellow alumni and other SNRE supporters. The goal is to ensure students have the resources to develop the best possible projects.

The idea came from Mark Zankel (M.S. '94), a member of the Visiting Committee and deputy state director for the New Hampshire chapter of The Nature Conservancy.

"For many students, myself included, the master's project was the defining experience of their graduate program, providing a remarkable opportunity to gain skills and experience in interdisciplinary team-building, project management and practical research, while forming lasting bonds with fellow students and their faculty advisers," Zankel said. "Like nearly all nonprofit institutions, however, U-M is grappling with the effects of the recession and one of the SNRE areas that has been the hardest hit is the master's project program."

The committee will unveil the plan this summer. Watch for details at snre.umich.edu/giving.

What is the master's project history?

SNRE added master's projects to its curriculum in the mid-1980s to provide a capstone experience that required students to apply theory to real-world problems and successfully collaborate in interdisciplinary teams. More than 160 projects have been completed to date. Beginning in May 2006, all incoming master's students have been admitted as "project students" under the opus option.

When do projects begin and how long do they take to complete?

Most master projects take root in NRE 701, the project planning course. This winter semester class helps students identify projects and project members. The course also focuses on building communication and decision-making skills and on group dynamics. The typical team works on a project for 12 to 18 months; research is often conducted in the spring and summer.

How much does a project cost?

Cost varies by client and scope of work and have ranged from \$6,000 to more than \$100,000 (a multi-year project). The school seeks support from clients, foundations and agencies to fund the master's project experience.

How do students find clients?

Often, the clients find them. Clients can propose a project to the school; ideas also come from faculty and students. Whether large for-profit companies or local nonprofit organizations, potential clients can express interest at any time, although early fall is best.

How can potential clients submit ideas?

Prospective clients can submit ideas and express interest through the Master's Project Idea submission form online. The website is snre.umich.edu/current_students/masters_projects. Oct. 31 is the annual deadline for submitting master's project ideas.

What happens to the final projects?

Student teams present their projects in December and April; the April symposium is the larger, and now spans two days. The presentations are open to the public. Some projects are published (see opposite page). Many clients implement the ideas developed by the student teams. The university archives the reports in its Deep Blue online database (deepblue.lib.umich.edu). To view past reports, click on "Browse Collections" and then the "Natural Resources and Environment" option. 



TAPPING STUDENT ENERGY: THE GREEN BREWERY PROJECT KICKED OFF IN APRIL AT THE BREWHOUSE. JOINING SNRE STUDENTS WERE RENE AND MATT GREFF (TOP OF STAIRS), OWNERS OF THE ARBOR BREWING COMPANY. STUDENTS (FROM BOTTOM STAIR) ARE JAZMINE BENNETT, KERBY SMITHSON, JARETT DIAMOND AND GARY FISCHER.

Can a local brewery become more sustainable and profitable at the same time? Four SNRE students are tapping into the Green Brewery Project and will serve the results in spring 2011.

The client is Arbor Brewing Company, an environmentally minded Ann Arbor company that operates two microbrewery-restaurants: the Arbor Brewing Company Pub & Eatery in Ann Arbor, and the Corner Brewery and Beer Garden in Ypsilanti. The project's goal is to produce a sustainability plan that lowers energy costs, increases the use of locally sourced products and raises revenue and customer loyalty at the Corner Brewery.

The group's goals reflect the varied skills and interests of team members. The students—Jazmine Bennett, Jarett Diamond, Gary Fischer and Kerby Smithson—are in the Sustainable Systems field of study and beginning their second year in the master's program. (Diamond is also pursuing a master of science in engineering degree through SNRE's dual-degree program with the College of Engineering.) Their adviser is Scott Noesen, an SNRE adjunct lecturer.

By project's end, team members will be able to evaluate a business for its energy use; identify energy and related capital improvements; evaluate those improvements for their life-cycle costs; and prioritize the results into a broader business plan.

The students have started conducting research and creating community awareness as part of the year-long master's project. They're tracking their progress on Facebook (facebook.com/greenbreweryproject) and Twitter (twitter.com/grnbrewproject).

FOLLOW ALONG:
facebook.com/greenbreweryproject
twitter.com/grnbrewproject

THE NEXT WAVES OF RESEARCH

The Great Lakes constitute the Earth's largest system of fresh surface water, so threats to the lakes are big news. From stories of invasive species (most notably, Asian carp) and lake levels to water diversion and climate change, the Great Lakes are awash in coverage. To gain further insight into these and other lakes-related issues, *Stewards* spoke with SNRE Professor Jim Diana, who also serves as director of the Michigan Sea Grant College Program.

Professor Diana is in his 31st year at the University of Michigan and became Michigan Sea Grant director in March 2009. He continues to teach, advise master's and doctoral students, and conduct his own research on aquaculture and the environment.



Stewards: You recently were a panelist at a caucus in the state capital for U-M alumni, legislators and others. Its focus was the importance of the Great Lakes to Michigan's economy. How is Michigan Sea Grant addressing economics, science and the Great Lakes?

Jim Diana: In terms of economics, we have a number of research programs doing integrated assessments on adoption of wind energy within coastal communities; on restoration of rivers and brownfields; and on economic development along coastal Lake Huron. In addition, we provide outreach via activities like the Michigan Clean Marina Program and Small Harbors Coalition, which have added value to local businesses by supporting environmentally friendly methods of doing business.

Stewards: Recently, Michigan Sea Grant co-produced *Guide to Great Lakes Fishes*, an illustrated book aimed at anglers and anyone interested in fishes (published by U-M Press). Why did your organization take on this project, and how do you hope it contributes to people's understanding of the lakes?

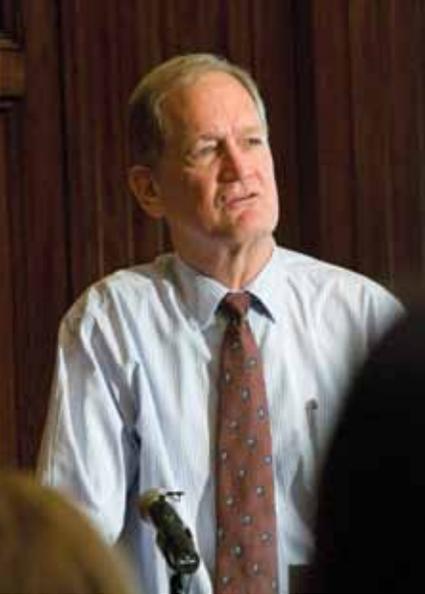
Diana: We actually began this project in 2004, initially talking with Jerry Smith, the author. Jerry has a long history of working with Sea Grant on a number of fisheries education products. Through the university's museums of Zoology and Natural History, he and other staff members help the public identify animals and understand their natural history. Sea Grant leveraged funds to

underwrite a significant part of the production costs for this book. It is a great example of a product aimed at a variety of people. Through educational publications like this, we expect people will appreciate the connections between good water quality, habitat protection and catching fish. Of course, learning more about how to identify native and invasive fishes is the primary goal of this new book.

Stewards: The Obama administration proposed spending \$425 million as part of a Great Lakes Restoration Initiative. What is the historical significance of this proposal, and how could it reshape research in coming years?

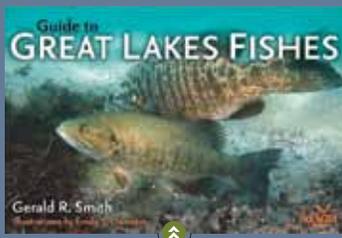
Diana: For some time, there have been major federal initiatives to restore some large ecosystems in the United States. For example, the Everglades restoration program has been funded to the tune of nearly \$8 billion, while the Chesapeake Bay restoration program received nearly \$4 billion. And the Obama administration initially proposed that the Great Lakes receive about \$4 billion. Given the relative size and water volume of these three different habitats, the Great Lakes funding is actually below what one would calculate based on these other ecosystems.

However, this funding is significant. It provides the means to restore degraded habitat and define restoration priorities and principles, and encourages federal and state agencies to prioritize their restoration activities. The funding is mainly for restoration



Housed at SNRE, Michigan Sea Grant is a joint effort of the University of Michigan and Michigan State University. It is part of the National Oceanic and Atmospheric Administration's National Sea Grant network of more than 30 university-based programs that pursue research, education and outreach goals to enhance the practical use and conservation of coastal, marine and Great Lakes resources. As a result, Michigan Sea Grant is on the front lines in researching and communicating the results to fellow scientists, policy makers and citizens.

—Photos courtesy of Michigan Sea Grant College Program



MICHIGAN SEA GRANT FUNDS RESEARCH ON TOPICS LIKE INVASIVE SPECIES (SUCH AS ZEBRA MUSSELS, TOP, AND ROUND GOBIES, CENTER) AND SUPPORTS FISHERIES EDUCATION THROUGH PROJECTS LIKE THE PUBLICATION OF *GUIDE TO GREAT LAKES FISHES*.

activities; still, it will be a major stimulus to research. Michigan Sea Grant is collaborating with other Sea Grant programs throughout the Great Lakes' region on a number of proposals. We are optimistic that U-M will receive considerable new funding for research, education and outreach.

Stewards: What type of work is Michigan Sea Grant doing along the coasts?

Diana: Michigan Sea Grant is involved in a large number of activities supporting coastal communities in environmental, economic and social issues related to living along the Great Lakes. For example, we have a Working Waterfronts Project that is focused on maintaining the quality of coastal areas with their combined industrial, recreational and aesthetic purposes. Similarly, we teach students about Great Lakes issues through online curricula, educational cruises on Lake St. Clair and the Detroit River, and the 4-H Great Lakes Camp in northeastern Michigan.

Our educators are also involved in marketing a select brand of Michigan whitefish throughout the region, as well as assessing the economic impacts of changed Great Lakes conditions on fisheries for salmonids. All of these represent varied and important coastal issues.

Stewards: The Asian carp isn't the first species to "invade" the Great Lakes. Where does it rank compared to past intruders, and how worried should we be?

Diana: The Great Lakes has had a long series of threats to its ecosystem integrity by invasive species, led by lamprey and alewives in the 1930s, zebra mussels and round gobies in the 1980s, and now Asian carp, including bighead and silver carp. Asian carp probably rank last in its impact compared to these previous intruders, as we have already seen major disruptions in

the Great Lakes in response to each of those species' expansion. Bighead and silver carp are not likely to become extremely abundant in the open waters of the Great Lakes, due to the low productivity of offshore waters and the carps' demand for food. Also, the current situation in Lake Huron, where the alewife population and Chinook salmon fisheries have collapsed, has already worsened far beyond what anyone would predict for worst-case impacts of invasive carp.

Bighead and silver carp are not the cause of this problem; it is a series of interactions involving zebra mussels, their effects on the lake ecosystem and food webs, and the higher demand for fishing through stocking that has driven Lake Huron to its current status. Without care, lakes Michigan and Ontario could easily follow suit, which would be an even larger disaster.

Stewards: The Great Lakes Compact came into existence in December 2008 as a tool to sustainably manage the water. How is Michigan Sea Grant involved in the compact?

Diana: Great Lakes' water levels are important for shipping, industrial use and drinking, as well as for their recreational and aesthetic value. However, scientists in the region have not adequately addressed the questions of water diversion and its economic impacts, which are major issues addressed in the compact.

We need to do this soon in order to fully understand the impact of potential future diversions. Water is becoming more precious, so pressure to divert water to other regions will only intensify. Scientists also predict that climate change will impact lake levels, and natural weather cycles do that regularly. We need more research and future simulations to truly understand the economic and ecological impacts. 📌

EARTH DAY

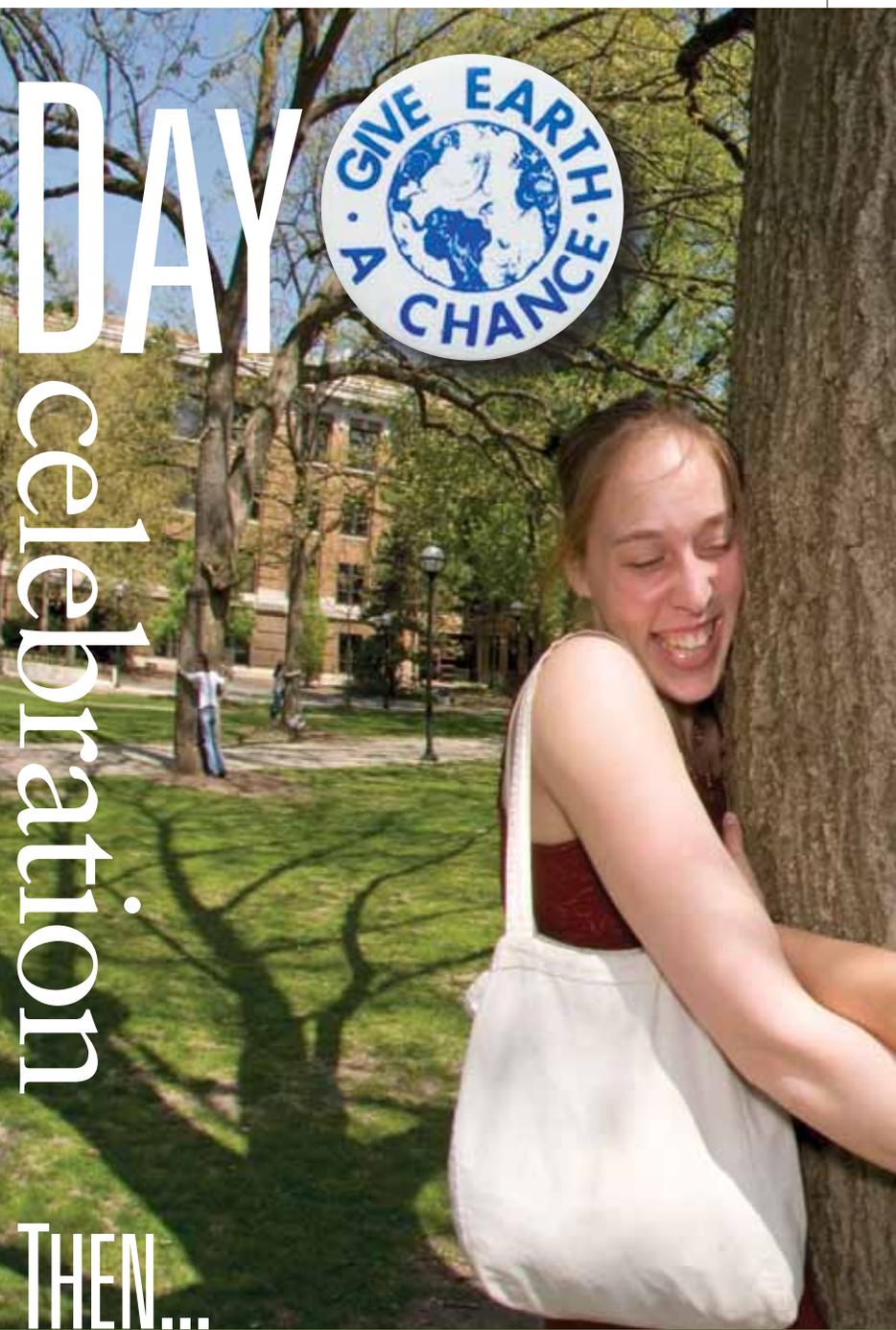
This spring, the university celebrated its role in the history of Earth Day, and the School of Natural Resources and Environment was front and center—just as it was in 1970.

Forty years ago, U-M students organized an Earth Day teach-in weeks before the official first nationwide event in March 1970. By being first (organizers moved up the start to avoid conflicts with final exams), the U-M event drew more national attention than the first “official” event. The framework of the Ann Arbor teach-in became a model for Earth Day events that followed.

The events of March 11-14, 1970, drew an estimated 15,000 people to Ann Arbor. Key organizers included Bill Manning (B.S. '70, M.S. Conservation '73), Doug Scott (B.S. '66, now policy director for the Campaign for America's Wilderness) and Dave Allan, now an associate dean at SNRE but then a U-M doctoral student in zoology. The teach-in drew activists, politicians and musicians, from Gordon Lightfoot and Barry Commoner to Ralph Nader and U.S. Sen. Edmund Muskie.

This year, the university paid homage to the original teach-in by holding similarly structured discussions on topics such as energy, climate change, sustainability and the Great Lakes' health. The 2010 teach-in began with four concurrent panels and concluded with an open session. Panelists with SNRE connections were professors Ivette Perfecto and Allen Burton; research scientist Tom Johengen; and senior lecturer John DeCicco.

+ READ MORE:
vpcomm.umich.edu/earthday/



celebration

THEN...
1970



In a demonstration on the Diag, students used a sledgehammer to take revenge on a 1959 model car, which symbolized the sources of pollution.



HUGGING IT OUT



NOT ALL EVENTS AROUND THIS YEAR'S 40TH ANNIVERSARY WERE ACADEMIC. MEMBERS OF ENACT (ENVIRONMENTAL ACTION FOR SURVIVAL), WHICH CAME INTO EXISTENCE AS A STUDENT ORGANIZATION SHORTLY BEFORE THE ORIGINAL TEACH-IN, ORGANIZED A "TREE-HUGGING FLASH MOB" APRIL 21. U-M UNDERGRADUATE BECCA STOLOFF (LEFT) AND SNRE GRADUATE STUDENT KAT SUPERFISKY WERE AMONG THOSE WHO MET ON THE STEPS OF THE GRADUATE LIBRARY AND THEN DISPERSED, FLASH MOB-STYLE, TO HUG TREES IN THE DIAG. PICTURED TOP: A REPRODUCTION OF THE ORIGINAL TEACH-IN BUTTON DISTRIBUTED THIS YEAR.

U-M doctoral student Dave Allan was asked by a university reporter in 1970 about whether the teach-in will work: "That's a really hard question to answer. I don't know if our teach-in will work. I think the problems in the environment are so profound, I don't know if people are really going to be willing to come to grips with them."



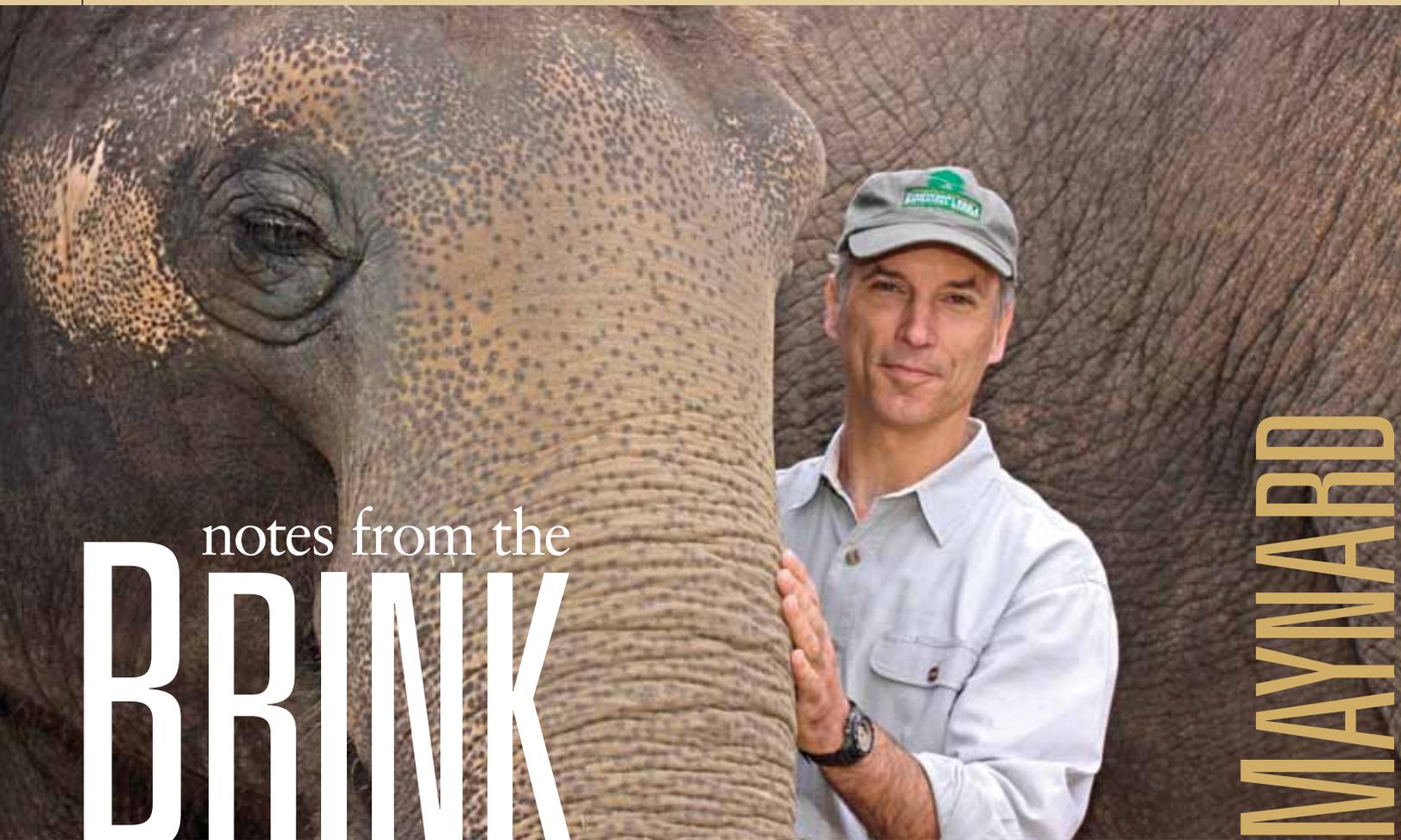
... & Now 2010



While the original teach-in explored topics such as water and air pollution, this year's event examined a broader set of regional and national challenges. One of the new potential environmental threats is Asian carp (above, brought in and stored on ice), which adds an additional threat to the region's \$7 billion fishing industry.

SNRE Associate Dean Dave Allan (below) reflected upon the environmental movement in an interview with the university as part of Earth Day 2010: "It was certainly one of the biggest campus events that occurred anywhere in the country. So 40 years later, it's still an important issue, it still has a lot of student energy, it's still very urgent. And I'm really quite proud, because it was a turning point as an issue that everyone needed to be concerned about."

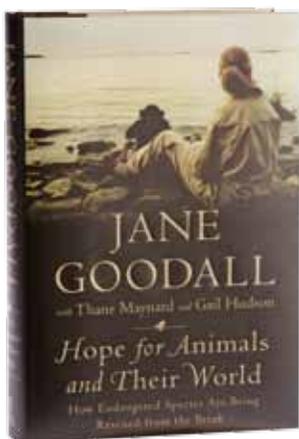




notes from the
BRINK

MAYNARD

BY LAURA WILLIAMS



SNRE alumnus, in a book with Jane Goodall, explores the plight, hope of endangered species



HOPE FOR ANIMALS AND THEIR WORLD: HOW ENDANGERED SPECIES ARE BEING RESCUED FROM THE BRINK. GRAND CENTRAL PUBLISHING. HARDCOVER, 416 PAGES, SEPTEMBER 2009.

Thane Maynard

director of the Cincinnati Zoo and Botanical Garden, host of a National Public Radio series called "The 90-Second Naturalist," and an SNRE graduate (M.S. '77), recently co-wrote his 13th book, *Hope for Animals and Their World: How Endangered Species Are Being Rescued from the Brink*, with legendary anthropologist and primatologist Jane Goodall.

The book profiles the successful preservation of endangered species such as the Mongolian miniature horses and Australian wallabies as well as ongoing efforts to preserve the habitats of species, including pandas and lion tamarins, that depend on them for survival. A third writer, Gail Hudson, who previously co-authored with Goodall a book on food called *Harvest for Hope*, also contributed. Goodall, of course, is famous for her 45-year study of chimpanzee social and family interactions in Tanzania and for founding the Jane Goodall Institute.

Maynard is famous in his own right as well. In addition to his media and publishing achievements, he appeared regularly on "Late Night with Conan O'Brien" with animals and made appearances on other TV shows including "Good Morning America," "The Today Show" and "CBS This Morning."

Maynard wrote the book's "Field Notes" sections, which contain profiles of conservationists, biologists, zoologists and others who have dedicated not only careers but entire lives to the preservation of a single endangered species. As the title implies, the book has an unusually optimistic take on endangered species, highlighting successful preservation, rehabilitation and reintroduction of animal species around the world. The stories provide inspiration and ideas for similar action to save the 1,000-plus animal species that remain endangered. "The concept of hopeful stories about wildlife mirrors that of many of my earlier books, as well as the work of modern zoos and aquariums," Maynard said. "We're here to inspire people with wildlife."

Stewards: Where did the idea for “Hope for Animals and Their World” originate?

Thane Maynard: The concept began in the fall of 2002 when Jane Goodall spoke at the Cincinnati Zoo. That night she held a California condor primary feather aloft and spoke of the incredible comeback of such an endangered species. So, following her lecture we talked for hours of the need for a hopeful message about the future of wildlife.

Stewards: What makes the book timely?

Maynard: More than ever there is a need for people from all walks of life to take effective action to protect wildlife and wild areas. Jane and I believe it is better to inspire people toward action than to depress them.

Stewards: How did you first come to work with Jane Goodall?

Maynard: I have known Jane since the spring of 1993, when together we visited a captive chimpanzee named Sam outside a bar in rural Ohio. She has spoken at the Cincinnati Zoo many times, and in 1999 she was kind enough to write a truly lovely introduction to my book *Working With*

Wildlife. Jane is a joy to work with. With her travel schedule, she is busier than anyone I know. But she is so genuinely committed to helping get people involved with wildlife and conservation and she makes herself quite accessible.

Stewards: What action can be taken by people who don't happen to be zoologists?

Maynard: The path to solving the problems we face today is through millions of individual decisions made by everyday people all over the world. Whether at the grocery or the thermostat, there are always better choices that help us live more sustainably, rather than just using resources like there's no tomorrow.

For example, there are a growing number of food products, from peanut butter to chocolate (two essentials), that are available without palm oil. Palm plantations are among the biggest causes of deforestation in Indonesia and Malaysia today. And in the towns where we live, there is always work to be done to protect remaining wildlife habitat—whether a local woodlot or protecting surrounding farmland from subdivision. The folks organizing those efforts can surely use your support.

Stewards: Why don't we hear more about species successfully saved or preserved?

Maynard: I think there are a couple of reasons that success stories don't make the headlines. Bad news travels fast, of course. And for some reason, optimism seems to irritate smart people. Sometimes that seems true in academia. But the good news is that our hopeful stories of intrepid conservationists who never give up really resonate well with the general public.

Stewards: At first glance, it seems working to conserve animal species would be incompatible with the work of capturing and displaying animals in zoos. After reading the book, I have a sense of how breeding in zoos has in fact saved some animals from extinction. How does protecting endangered animals relate to your work in zoos?

Maynard: We are, thankfully, living in the great renaissance days for zoos. Decades ago, zoos were consumers of wildlife taken from the wild, but today most zoos are directly involved in field conservation. And yes, species from the California condor to the Przewalski's Horse owe their existence in the wild to captive breeding in zoos. More importantly, of course, is the public education role of modern zoos. In the U.S. alone, more than 125 million people visit zoos each year, and many find that their local zoo provides a great 'on ramp' to get involved with wildlife conservation.

Stewards: What other species besides those you write about in your “Field Notes” have you worked with in terms of conservation?

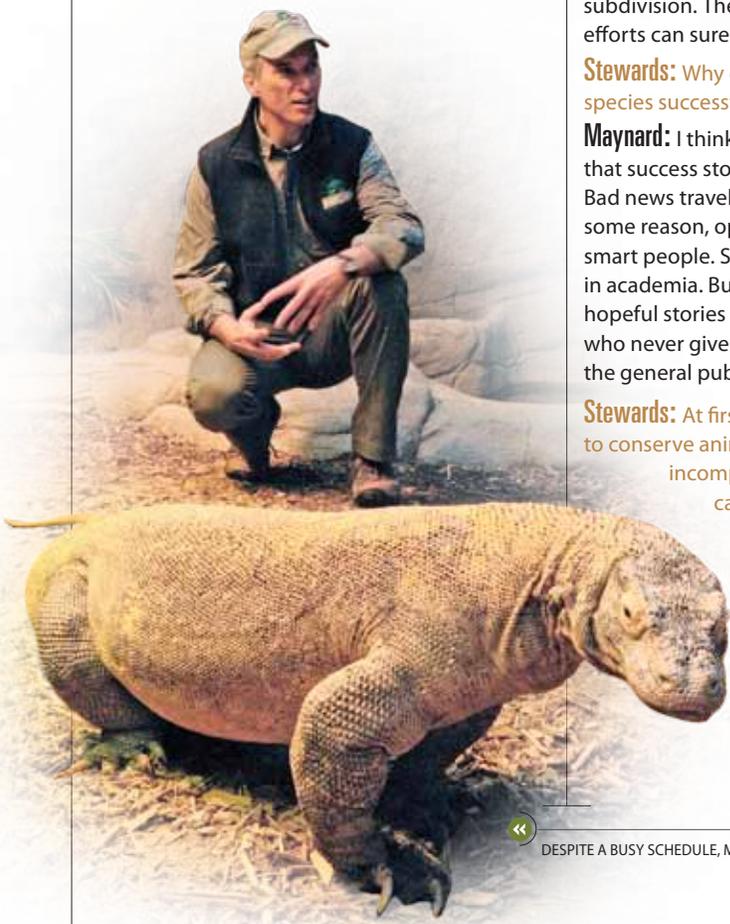
Maynard: Here at the Cincinnati Zoo, we are leaders in the effort to save the African cheetah and the Sumatran rhino, which are our signature conservation programs. We're not only involved here in Ohio with captive breeding and education, but also on the ground in Africa and South Asia, working to protect the remaining populations and their habitats there.

Stewards: What's the thing that surprised you most about the writing of this book?

Maynard: The undying dedication of these conservationists, often against heavy odds, was really remarkable. Some of them are smart, some are broke, some well-educated, some quiet and reserved, but they all share one trait: They all refuse to take no for an answer.

Stewards: What role did your work at the School of Natural Resources and Environment play in your later career?

Maynard: Students coming up really benefit from positive role models. I was fortunate when I was at Michigan to work with two terrific professors: Bill Stapp [considered the “father of environmental education,” who taught at U-M from 1970 to 1993 and died in 2001] and Bobbi Low, who still teaches at SNRE today. From Bill I learned how getting the community involved can take a program past the tipping point. And from Bobbi I gained my great passion for evolutionary biology. As Darwin so eloquently put it in the close of his great book, “There is grandeur in this view of life.”



DESPITE A BUSY SCHEDULE, MAYNARD STILL WORKS REGULARLY WITH ANIMALS, WHETHER ELEPHANTS (OPPOSITE PAGE) OR KOMODO DRAGONS.

—Elephant photo: Tom Ullhman. Komodo dragon: Cincinnati Zoo and Botanical Garden

home-field ADVANTAGE

Returning alumni connect employers to SNRE students at Career Fair

The 2010 SNRE Environmental Career Fair turned into an alumni reunion, as graduates returned to promote their employers' services and mission and to recruit a new generation of environmental leaders. The expo-like event in the Ford Commons drew 24 businesses and nonprofit organizations, including seven represented by returning alumni recruiters.

At the time of the fair, SNRE had more than 470 students pursuing master's or doctoral degrees. Employers not currently hiring were also welcome to network and provide information about future opportunities.

The annual fair is the largest—but not the only—career activity coordinated by the school's Office of Academic Programs. The office also coordinates the compilation of student resume books; a portfolio review session for Landscape Architecture students; a job search strategies panel that features graduating students talking about how they secured their jobs and offering hiring-strategy tips for other students; and the Virtual Environmental Career Fair. This year, the virtual fair focused on Washington, D.C.-area employers, who participated by posting job and internship openings on SNRE's eRecruiter online career website.

Alumni can post jobs and internships on eRecruiter for current students to review students by setting up a free employer account. Visit <https://snreumich-csm.symplicity.com/> and click on "Employers".

(Interested in participating in next year's SNRE Career Fair? Mark your calendar for January 2011 and e-mail snre.careers@umich.edu for more information.)

READ MORE:

snre.umich.edu/career_services/resources



AT THE TIME OF THE FAIR, SNRE HAD MORE THAN 470 STUDENTS PURSUING MASTER'S OR DOCTORAL DEGREES.

FAIR TRACKER

Here are Class Notes updates and employer information on the alumni who attended the most recent career fair.

James H. Buck

Program Analyst, USDA Animal and Plant Health Inspection Service Plant Protection and Quarantine Emerald Ash Borer Program. Time with employer: 3 years. Ph.D. '08 (Resource Ecology and Management); M.S.'01 and M.A. from CREES (2005); B.S. '97

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service provides leadership in ensuring the health and care of animals and plants. I have written guides and guidelines related to surveying Emerald Ash Borer community preparedness and pallet regulation; and I collect, analyze, evaluate and report data from external sources regarding potential pest pathways and risks. I'm also coordinating the use of biological control agents to suppress Emerald Ash Borer populations. My experience with dendrochronology from my Ph.D. research in Siberia has been valuable for analyzing infestations.



Danielle Gartner

Natural Resource Analyst, Center for Applied Environmental Research, University Outreach, University of Michigan-Flint. Time with employer: 2 years. M.S. '08 (Environmental Justice)

The Center for Applied Environmental Research at UM-Flint addresses local environmental needs by combining technical consultation, education, facilitation and research with creative applications of geographic information systems. I manage a K-12 teacher and community training program to bring place-based education into

Flint-area schools, coordinate a community gardening program and assist with the implementation of a green infrastructure capacity-building project.

Justin Heslinga

Natural Resource Technician, Huron-Clinton Metroparks, Natural Resources Department. Time with employer: 1 year, 6 months. M.S. '08 (Terrestrial Ecosystems)

I participate in all aspects of natural resource management of the Huron-Clinton Metroparks, a 24,000-acre regional park system in southeast Michigan. The Natural Resources Department works to balance ecological stew-



ardship with recreational use of the parks; some things we do include conducting species inventories, prioritizing restoration areas, developing ecological management plans, removing invasive species, planning and conducting prescribed burns, and monitoring threatened and endangered species within the Metroparks.



Jennifer Janssen

Online Outreach Coordinator, National Wildlife Federation, Great Lakes Regional Center. Time with employer: 1 year, 6 months. M.S. '08 (Resource Ecology and Management)

I work to educate and mobilize National Wildlife Federation (NWF) supporters from around the country with online opportunities to take action and get engaged protecting the Great Lakes, stopping climate change and helping people connect with nature. We're always looking for volunteers and interns here at NWF's Action Team, as well as to help with our law and science work.

Maura Jung

Volunteer, Michigan Nature Association. Other affiliations: Board member - Southeastern Michigan Land Conservancy, Michigan Alliance for Environmental and Outdoor Education, and Orchards Children's Services; co-chair for the Friends of Bowers School Farm. B.S. '83, Natural Resources (Major: Environmental Education)

I have worked as a park naturalist with the Huron-Clinton Metropolitan Authority, a curriculum consultant and nature center manager for the Lake Orion Community Schools, nature center and science and math coordinator at the Cranbrook Institute of Science, environmental education and science methods instructor at Oakland University, science consultant with Oakland Schools, and teacher and assistant principal at a charter school in Detroit. I'm currently working as a consultant in science and environmental education and working with a statewide group to write an environmental literacy plan for Michigan. After graduating from NRE, I earned master's and doctoral degrees from Wayne State University.



Melinda Koslow

Regional Campaign Manager, Safeguards Program. National Wildlife Federation, Great Lakes Regional Center. Time with employer: 1 year, 6 months. M.S. '08 (Sustainable Systems)

NWF is working to build momentum throughout the Great Lakes on plans and protections for the resources we value. I develop and implement strategies that help safeguard the Great Lakes region against extreme precipitation, diminished ice cover, changes to migration patterns and variable water quantity and quality. As the first manager at this center to be dedicated solely to coping with climate change, I have built the program from the ground up, working to bridge the gap between scientific findings and the policy actions necessary for effective adaptation to climate change.



Michelle Martinez

Conservation Organizer, Clean Energy Solutions, Sierra Club. Time with employer: 6 months. M.S. '08 (Environmental Policy and Planning)

I work with local Sierra Club members and volunteers to advocate for climate change mitigation policies and practices within city governments. Since graduating and moving back to Detroit, I've dedicated my time to urban agriculture, served on the board of Friends of the Detroit River and fought for environmental justice in my Southwest Detroit neighborhood. And I'm still working on my group's master's project publication with colleagues Vicki Kalkirtz and Alexandria Teague.



Jesse Worker

Federal climate and energy campaign organizer, Clean Water Action. Time with employer: 1 year. M.S. '09 (Environmental Policy and Planning)

I recruit and develop volunteer community organizers to push Michigan lawmakers to support comprehensive energy legislation. Climate justice and environmental stewardship draw faith leaders; national security implications and health impacts attract veterans and public health groups; and Michigan economic redevelopment opportunities drawn from business community support. My job is to help build coalitions and diverse public support for climate change legislation.



Class Notes

Charles E. Olson, Jr. (B.S.F. '52, Ph.D. '69), an emeritus professor and dean from 1974-75, was selected as the next Honorary Member of the American Society for Photogrammetry and Remote Sensing (ASPRS). Honorary membership is the highest award an ASPRS member can receive. Professor Olson joined the faculty in 1964. During his 36-year SNRE career, he taught undergraduate and graduate courses on such topics as map and image interpretation, remote sensing of environments and imaging radar. He became director of the school's Remote Sensing Laboratory in 1970 and served as its graduate chair from 1972-74. The award recognizes individuals for distinguished service to ASPRS and distinction in advancing the science and use of the geospatial information sciences. He received the award in April at its annual conference.



Ronald Bauer (B.S. '60) has agreed to be the school's reunion representative this fall as part of the Michigan 50th Reunion celebration. The events take place each fall during homecoming. Bauer also holds master's and doctoral degrees in political science from the University of Michigan. He and his wife Nancy reside in Spring Lake, Mich. The 50th Reunion gathering is Homecoming weekend Oct. 14-17 and offers a wonderful opportunity to reunite with classmates and rekindle these and other fond U-M recollections. (If you are a fellow member of the class of 1960, visit reunions.umich.edu or contact 866.998.6150 or UMreunions@umich.edu for more information.)



Eric Charnov (B.S. '69), a Distinguished Professor of Biology at the University of New Mexico, was recently elected a Fellow of the American Academy of Arts and Sciences, one of the nation's most prestigious honorary societies. His research combines ideas from ecology, economics and evolution to understand the life history and reproductive and foraging decisions of plants and

Class Notes

animals, including humans. For the past 30 years, his ideas have produced many of the most-cited publications in evolutionary ecology. He previously was named both a MacArthur and Guggenheim Fellow and has received the George Mercer Award from the Ecological Society of America.

Douglas S. Powell (B.S. '71) retired earlier this year from the U.S. Forest Service in Washington, D.C. He served 38 years with the agency, joining the summer he graduated from SNRE. He is splitting his time between the D.C. area and rural log home in Pennsylvania with his wife, Michaeline, and dog, Teddy. His e-mail ("for you old warriors") is doug@dpowell.us.



POWELL

Neil W. MacDonald (B.S. '76, Post-Doctoral Research Associate '87-94) is professor of Biology and Natural Resources Management and Chair, Biology Department, at Grand Valley State University, Allendale, Mich. He has been at GVSU since 1994, teaching courses in its Natural Resources Management Program. His research with undergraduate and graduate students has included water-quality monitoring, watershed project planning, stream remediation, fishery survey and establishment of native plants on a spotted knapweed infested site. "I draw upon the foundation provided by my time at SNRE on a daily basis, and try to make sure GVSU students have some of the same valuable experiences I had as an undergraduate student," he said. E-mail: macdonan@gvsu.edu.



MACDONALD

Cliff Keil (B.S. '76) is professor and director of the Museum of Invertebrates at the Pontifical Catholic University of Ecuador in the School of Biological Sciences. With more than 2 million specimens, the museum has one of the largest collections of insects in Ecuador. It also facilitates permits and logistics for visiting foreign scientists, especially to the Yasuni Biological Station in the Ecuadorian Amazon. "I never could have imagined that I could go from collecting aquatic insects with Prof. Justin Leonard in Michigan's AuSable River in waders and snowshoes to picking mayflies out of streams in the Amazon rain forest," writes Cliff, who earned his bachelor's in Wildlife, Fisheries and Forestry. "The lessons and skills of a great group of professors, John Witter, Burt Barnes, Glenn Bruneau, John Kadlec, Dale McCullough and Arch Cowan among others, have stood the test of time and allowed me to adapt to a wide range of environments and ecological situations. Moreover, they taught me to think critically." He previously worked 25 years in the Department of Entomology and Wildlife Ecology at the University of Delaware. E-mail: keil617@yahoo.com.

Kurt Kutay (M.S. '82) is celebrating the 25th year of his adventure travel company, Wildland Adventures. In an extensive survey of hundreds of travel outfitters worldwide, *National Geographic Adventure* magazine ranked Wildland Adventures the #1 "Best Do-It-All Adventure Travel Company on Earth" for its global reach and limitless expertise. Kutay credits Kenton Miller, one of his SNRE professors who was a specialist in international park planning and management, for the inspiration behind his interest in starting an adventure travel business. Learn more about his company at www.wildland.com.



KUTAY

Doug Kenney (M.S. '89) is director of the Western Water Policy Program at the University of Colorado's Natural Resources Law Center. His work focuses on several aspects of Western U.S. water policy including transboundary conflicts, climate change impacts and adaptation, legal reform and the water-energy nexus. He has served as an adviser to a wide variety of

Caretakers

The fall 2009 SNRE Campfire at Saginaw Forest was truly a homecoming for **John (B.S. '59) and Pat Beaudoin**. The couple lived at the forest's caretaker house for two years while John attended classes; the cottage later became home to three after their first child was born. The Beaudoins were in Ann Arbor as part of 50th Reunion activities sponsored by the university during 2009 Homecoming. They spent the evening sharing memories and helping to explain some of the building's mysteries. When they entered the home, the long-married couple was pleasantly surprised to see many updates since they were occupants. For example, the shower was a well-

come addition since they had to carry water from the lake and heat it in a metal tub whenever they wanted to bathe. They also provided insight into the small structure attached to the side of the adjacent barn: It was a dog house built by John for the family's beagle puppy.

Curious about the goings-on at Saginaw Forest? Current student caretaker Shaw Lacy maintains a blog rich in detail about the natural and social events of the site.

READ MORE:
saginawforest.blogspot.com



THE BEAUDOINS

local, state, multi-state and federal agencies, and national governments and NGOs in Asia and Africa. E-mail: douglas.kenney@colorado.edu.

Christine Montross (B.S. '96) is in her final year of psychiatry residency at Brown University. Her nonfiction memoir, *Body of Work: Meditations on Mortality from the Human Anatomy Lab*, was published by The Penguin Press in 2007. It was named a Best Nonfiction Book of 2007 by *The Washington Post* and an Editor's Choice of *The New York Times Book Review*. She lives in Providence, R.I., with her partner, playwright Deborah Salem Smith, and their two children.

William E. Dornbos (M.S./J.D. '98) is associate director of the Yale Center for Environmental Law and Policy. He previously worked at the Natural Resources Defense Council as a special assistant to the executive team and as an assistant attorney general in the

New York State Attorney General's Office, prosecuting a range of environmental enforcement cases.

Joel Brammeier (M.S. '98) was named president and chief executive officer of the Alliance for the Great Lakes, based in Grand Haven, Mich. Brammeier previously served as the Alliance's vice president for policy. He joined the organization in 2001 as habitat program manager. He oversees a staff of 15 and more than 7,000 volunteers working to build a sustainable future for the Great Lakes.



BRAMMEIER

Ross A. Hammersley (B.S. '98) has joined the law firm of Olson, Bzdok & Howard, P.C., in Traverse City, Mich. His environmental law practice focuses on municipal, brownfield and land-use law. E-mail: ross@envlaw.com.

Chad Laurent (B.S. '01) graduated from Suffolk University Law School in Boston with a juris doctor degree and joined the international consulting firm Meister Consultants Group, Inc. He is a consultant specializing in renewable energy law and policy, sustainable business strategies and renewable energy project development. Prior to attending law school, he was the manager of Renewable Energy Programs for the Massachusetts Energy Consumers' Alliance. While at SNRE, he did research on the effects of climate change on wintering bird species and interned during the summers at the Rocky Mountain Institute in Snowmass, Colo.

Stanley Szwalek (B.S. '01, M.L.A., '03) is a landscape architect at Selberg Architects, a division of Reinertsen AS, a large, multi-disciplinary consulting firm in Trondheim, Norway. Stanley works on a variety of planning and design projects including schools, parks, urban design and roadway improvement. He is currently working on the construction of a local high school, designs for sound-barrier walls in a local community, and a rooftop garden in a mixed-used urban development in downtown Trondheim. He says that working in Norway has been a challenging and rewarding experience.

Leah Katz (M.S. '04) is grants manager for San Francisco-based

Sustainable Conservation, a nonprofit that advances the stewardship of natural resources using strategies that actively engage businesses and private landowners in conservation.

Amanda Garratt (M.S. '08, M.S.W. '08) was one of 28 U-M students selected as a 2009-10 Fulbright Fellow. Garratt, who received a dual degree from SNRE and the School of Social

Share your news or photos about your new job or personal achievements with fellow alumni. Send your information to Kevin Merrill, director of communications, either via e-mail (merrillk@umich.edu) or through regular mail. The address is School of Natural Resources and Environment, Office of Communications, University of Michigan, 440 Church St., Ann Arbor, MI, 48109-1041. We're looking forward to hearing from you and spreading your good news.

Work, plans to use the fellowship to travel to Peru. Her project is called "Traditional Conservation in the Peruvian Amazon: Toward a Collaborative Approach."

Sarah Hines (M.S./MBA '08) returned to campus last fall to take part in a



student-focused lunch discussion on carbon markets and payments for ecosystem services. Hines is a Presidential Management Fellow with the U.S. Forest Service. In her role, she focuses on issues related to climate change mitigation and adaptation, and the potential for private landowners to engage in emerging carbon and other ecosystem service markets. SNRE's Doris Duke Fellows and Wyss Scholars (see page 8) organized the event.

Cory Forbes (M.S. '09) is an assistant professor of science education in the University of Iowa's Department of Teaching & Learning, College of Education. He works in the elementary and secondary teacher education programs, as well as the graduate program in science education. In 2009, he completed his master's in Behavior, Education and Communication from SNRE (under Associate Professor Michaela Zint) and his doctorate in science education from the U-M School of Education.

IN MEMORIAM

Francis T. (Chris) Christy, Jr. (M.S. '59, Ph.D. '64), a groundbreaking economist in the field of fisheries management, died last summer at home in Washington, D.C. He was 82. In May, the North American Association of Fisheries Economists recognized his contributions to the field with an award commemorating the 36th anniversary of *Fishermen's Quotas: A Tentative Suggestion for Domestic Management*, a paper that changed fisheries management. At SNRE, he was the first student to enroll in the new graduate program in natural resources conservation established by Stanley A. Cain. His career spanned almost five decades and included extensive travel to developing countries and positions with a range of organizations, including the Food and Agriculture Organization of the United Nations, the Inter-American Development Bank and The World Bank.

S. Ross Tocher (Ph.D. '69), an SNRE professor who held the Dana Chair for many years, died Oct. 15. Professor Tocher joined the Department of Forestry in 1965 and retired in 1981. Many former colleagues and students kept in touch after his retirement and continued to enjoy the results of his passion for photography. While at SNRE, he collaborated with Professor Grant Sharpe in expanding the focus of the forestry department's recreation program. Upon earning his doctoral degree, Professor Tocher took over the International Seminar on National Parks and Equivalent Reserves, changing its format to a four-week traveling field study that gave the school substantial visibility. Several dozen high-ranking park administrators and professionals from around the world joined the seminar each summer. Professor Tocher also taught a popular undergraduate course in outdoor recreation.

Former Landscape Architecture Professor **Robert (Bob) F. Scheele**, who taught in the program from 1973-86, lost a three-year battle with cancer Oct. 21.

share PEACE CORPS MEMORIES



MASSACHUSETTS SEN. JOHN KENNEDY STANDING ON THE STEPS OF THE MICHIGAN UNION AS HE ANNOUNCES HIS IDEA FOR A PEACE CORPS.

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Well after midnight on Oct. 14, 1960, Senator John F. Kennedy arrived at the Michigan Union after a long day of campaigning for the presidency. Speaking from the center of the stone staircase, he challenged University of Michigan students to dedicate themselves to global peace and justice by living and working in developing nations—and hundreds responded with signed petitions. From that powerful idea and the action of the U-M students grew the Peace Corps, a program that has defined international volunteer service for the past 50 years. By 1966, more than 300 U-M alumni had joined. Beginning in October, the university celebrates its role in the creation of the Peace Corps. As part of those commemorative activities, the School of Natural Resources and Environment is seeking memories from alumni who served in the Peace Corps. The reflections are being collected through a website and will be the basis for stories in the fall issue of this magazine. In addition to having many alumni who later served in the Peace Corps, SNRE actively recruits returning Peace Corps volunteers through its Peace Corps Fellows Program. SNRE has traditionally appealed to returning volunteers because of its diverse curriculum and global focus. Through its donor-supported fellows program, SNRE provides tuition assistance to as many as four Peace Corps Fellows per year.

SHARE YOUR STORY:
snre.umich.edu/alumni/

MAKING A DIFFERENCE

ERIC CHU

Age: 24

Hometown: Difficult to say. "It's a tie between Hong Kong, San Carlos, Calif., and Flushing, N.Y."

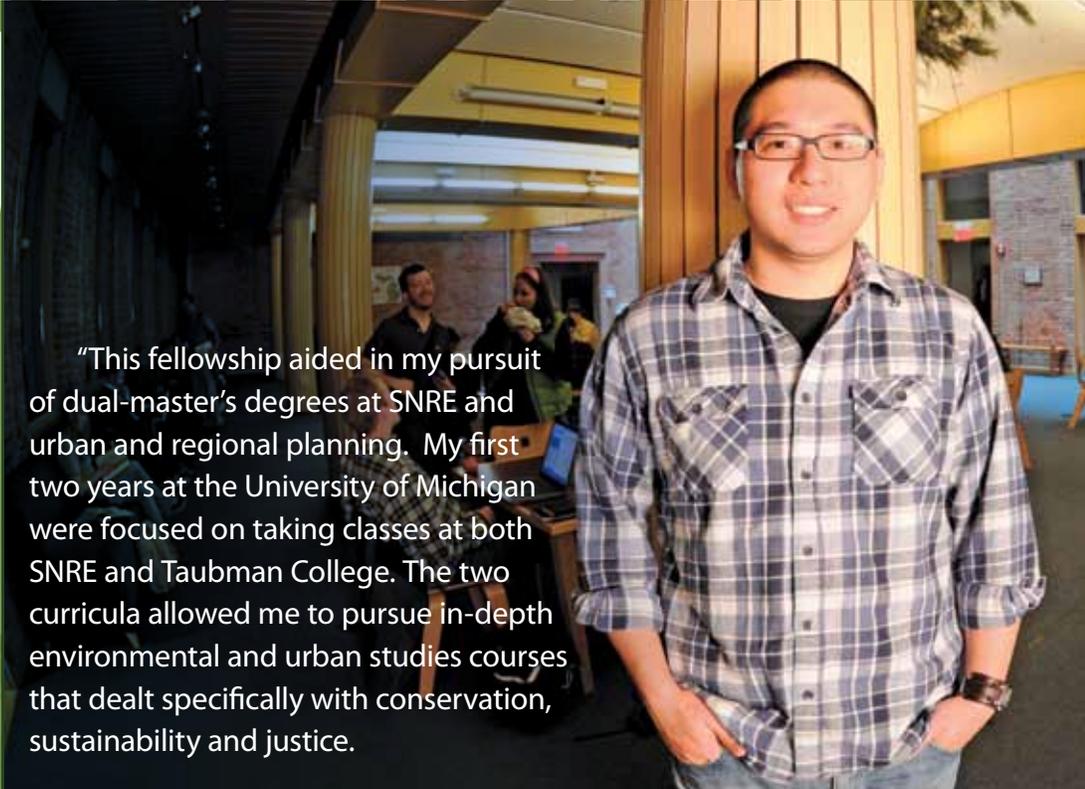
Undergraduate degree: B.S., natural resources, Cornell University

SNRE field of study: M.S., Environmental Policy and Planning; M.U.P, Urban Planning, Taubman College of Architecture and Urban Planning

Why the environmental field interests you: "I love the outdoors and working on making a difference in the world."

Graduated: May 2010

"This fellowship aided in my pursuit of dual-master's degrees at SNRE and urban and regional planning. My first two years at the University of Michigan were focused on taking classes at both SNRE and Taubman College. The two curricula allowed me to pursue in-depth environmental and urban studies courses that dealt specifically with conservation, sustainability and justice.



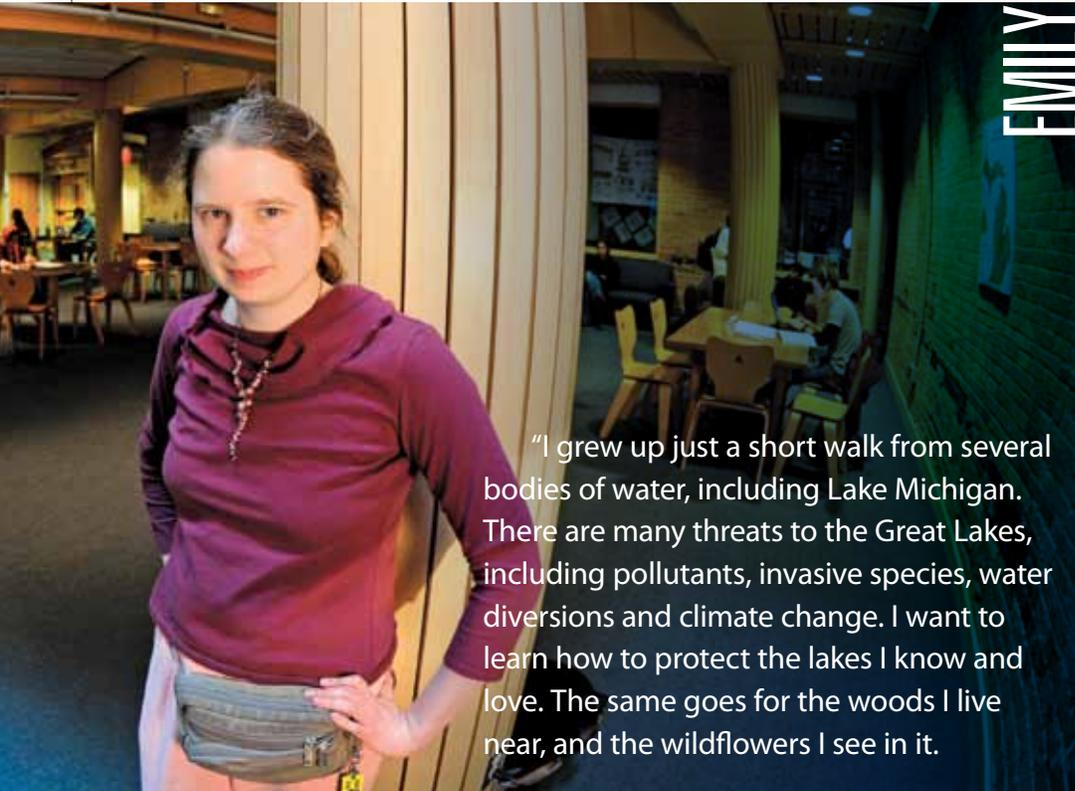

ACT TODAY:
snre.umich.edu/giving

"My third year marked my award of a Foreign Language and Area Studies Fellowship from the U-M Center for South Asian Studies. This unique opportunity added a specialized geographic dimension to my academic interests in climate change adaptation, international development planning and participatory policy making. I spent most of this year honing in on my South Asian regional focus (including taking courses on the Hindi language), which represented a continuation of my master's project field studies in Nepal. It was a welcomed diversion from my African field work conducted during a summer 2009 internship with the World Resources Institute (WRI).

"With help from Dean Rosina M. Bierbaum, I was able to apply my interests and skills acquired at SNRE to this internship in Washington, D.C. In particular, I worked with WRI's Vulnerability and Adaptation Project in researching models for climate-resilient development planning in developing and emerging economies.

"I chose to attend the University of Michigan because I desired an interdisciplinary curriculum in natural resource policy and planning. My unique dual-degree experience has allowed me to express my interests and gain skills in both fields of study. As I wrap up and reflect upon my experience, I most appreciate the interdisciplinary and flexible nature of the two programs."

Each year, SNRE alumni and friends help the next generation of environmental leaders complete their degrees. Your gifts come in many forms, but one of the most important is support of the Annual Fund. Through it, the school bestows the SNRE Annual Fund Scholarship Award. This year, the fund allowed the school to assist several students, including Eric Chu and Emily Baker. We thank you for your continued support.



EMILY BAKER

Age: 25

Hometown: Traverse City and Frankfort, Mich.

Undergraduate degree: B.A., liberal studies, with an emphasis on Earth, the Environment and Human Culture, Grand Valley State University

SNRE field of study: Aquatic Sciences: Research and Management; Conservation Biology

Why the environmental field interests you: "I want to learn how to protect the lakes I know and love. The same goes for the woods I live near, and the wildflowers I see in it."

Graduating: May 2011

"I grew up just a short walk from several bodies of water, including Lake Michigan. There are many threats to the Great Lakes, including pollutants, invasive species, water diversions and climate change. I want to learn how to protect the lakes I know and love. The same goes for the woods I live near, and the wildflowers I see in it.

"This fellowship has allowed me to continue my studies, which are increasingly interdisciplinary. Whether learning about STELLA modeling or fluvial ecosystems (which gave me the chance to take a weekend trip to observe and sample several rivers), I have found my education extremely cross-disciplinary.

"I also took a Restoration Concepts class in which our main assignment was to work on a restoration project for a small creek in SNRE's own Saginaw Forest. I helped find the state of the watershed and measure impenetrable surfaces. Members of my group came up with a model to use with the Storm Water Management Model program, and the rest of the classmates figured out monitoring plans and ways to restore the eroding streambanks.

"For the NRE 580 Integrated Assessment core class this semester, I participated in a group assessment and practiced climate negotiation by serving as Spain's Minister of Environment, Land and Sea! For that role, I had to write a memo outlining my agenda and strategy in the negotiation process.

"I'm working on a database about invasive species in the Great Lakes, which lists likely invaders from other bodies of water and countries. After graduation, I want to get involved in the growing field of ecological restoration. I am especially interested in research and hands-on field work, including communicating projects. I would like to work in the nonprofit sector."

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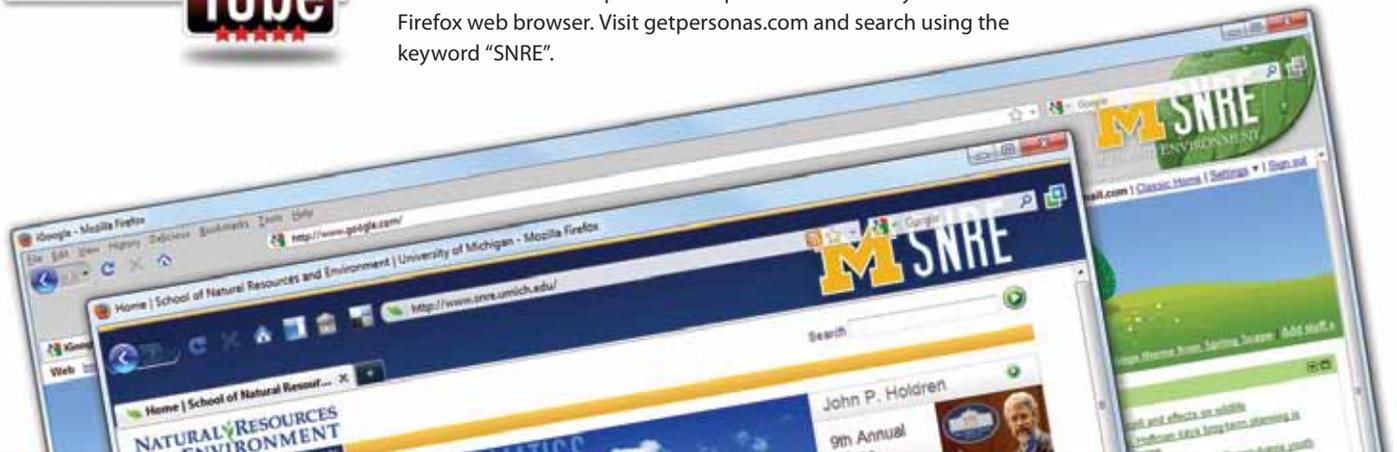
Stewards
CONNECT



STAY IN TOUCH

Whether through video on YouTube or images on Flickr, SNRE is all about networking. Get connected and become a participant in our online communities. Learn more at snre.umich.edu/social-networking.

Show your SNRE spirit while surfing our social media sites. Download one of our persona templates for use with your Firefox web browser. Visit getpersonas.com and search using the keyword "SNRE".



Events

→ August 3

Ecological Society of America (ESA) Mixer. Join SNRE alumni and friends for this event, held during the annual ESA conference. SNRE host is Professor Ivette Perfecto. Weston Hotel and Conference Center, Pittsburgh, Pa. 6-8 p.m. Visit snre.umich.edu/alumni for details.

→ September 10

SNRE Alumni and Friends Reception. Join us for this event, held during the annual American Society of Landscape Architects conference. SNRE host is Associate Professor Christopher D. Ellis. Grand Hyatt Washington, Washington, D.C. 8-10 p.m. Visit snre.umich.edu/alumni for details.

→ Homecoming Celebration: October 15

- Homecoming Luncheon, 12:30-2 p.m. Join SNRE in celebrating the Class of 1960 and Emeritus Reunion Weekend. Location details will be sent to registered attendees.
- Saginaw Forest Tour, 4-5 p.m. Join fellow alumni for a short, guided walking tour of Saginaw Forest to celebrate the Reunion Weekend and enjoy the outdoors with other enthusiasts (precedes the campfire). Saginaw Forest, 3900 W. Liberty Rd.
- Annual Campfire. 5-9 p.m. This event, featuring food, games and music, is known to generations of SNRE students. Bring a flashlight or headlamp and wear warm clothing. Saginaw Forest. For more information about this event or to view the full Homecoming schedule, visit snre.umich.edu/homecoming.

➤ visit snre.umich.edu/events