



Professor Michael Beevers' 2012 Senior Seminar class takes time to enjoy the fall weather and the fallen leaves in Shenandoah National Park. Students visited the park as part of the weekend trip that also included apple gleaning and a visit to Catoclin Wildlife Preserve and Zoo.

THE ENVIRONMENTAL CONNECTION

ENVIRONMENTAL STUDIES
ALUMNI NEWSLETTER



2013

ENVIRONMENTAL STUDIES DEPARTMENT

DICKINSON COLLEGE

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Learn about what's new on the Dickinson College Farm.

[New Faces in ES](#)

The year 2013 brought lots of new faces to the ES department. We are pleased to welcome our new hires and invite you to learn a little bit more about them!

[Alumni Updates](#)

Check out what your fellow alums have been up to outside of Dickinson!

This is an interactive newsletter. You can use [links](#) to navigate around the newsletter and to [other websites](#). You can also click on the  buttons to watch videos!

A Note from the Chair

by Ashton Nichols, Chair

What a year it has been as Chair of Environmental Studies and Science!

When I agreed to take on this position back in the summer of 2012, little did I suspect how many unexpected challenges and activities would join the already full plates of the members of our busy and transitional programs. With both Candie Wilderman and Michael Heiman in the phased retirement program—Michael will finish teaching in December of 2013 and officially retire (I first wrote “graduate”!) in May of 2014, while Candie will have one more year and finish up in the spring of 2015). At the same time, interest in our program has flourished—partly as a result of the successes of CES and the College’s all-college commitment to sustainability.

As the year got underway, Mary Orr, our great Academic Department Coordinator for a number of years, announced that she had accepted a position in the Technology Services Office at Dickinson, working as their purchasing agent, a post that fits Mary’s interests perfectly. So Pete Sak, Chair of Earth Sciences, and I went to work quickly, and we were extremely lucky to be able to hire Deb Peters as our new ADC. Deb is a Carlisle native who has worked with Dotie Warner in our Conferences and Special Events Office for over 15 years and who came to us with wide ranging knowledge of Dickinson and with superb skills and a super team attitude. ([Read more about Deb](#)).

Just as we were dealing with our need for a new ADC, Vallie Edenbo, our long-time Academic Technician, received an offer from a local organic farm—toward Hanover below Mount Holly near East Berlin—to become their overall manager. Not only was this Vallie’s dream job, but it would also allow her husband Steve Edenbo, and their young son, to join her living in a gorgeous Pennsylvania stone farmhouse on the southern side of the of the Blue Ridge’s South Mountain. So once again, a job search began to replace the unreplaceable Vallie and, before long, thanks to the recommendation of Candie’s pal, Maryland’s premiere nature writer—Tom Horton—we hired Emily Thorpe, a Chesapeake Conservation Corps volunteer with DNR (Department of Natural Resources) in Annapolis. Emily is a committed student of the environment, especially water quality, and her senior honors thesis on the Chesapeake Bay has just received the award as the best thesis of 2012 from Salisbury University on Maryland’s Eastern Shore. Emily joined us at the end of the academic year and has already risen to the



challenge of taking on the numerous duties of our Academic Technician, to whose job title I always add the description “Departmental Assistant.” ([Read more about Emily](#)).

Our third important hire of the year was for Candie Wilderman’s faculty-line replacement in aquatic environmental science, even though Candie will be with us for two more full years, teaching part-time. A widely-circulated advertisement produced a large pile of applicants from around the country, and the world (some of whom may have been primarily seeking Green Cards for the U.S.). From there we narrowed the search to a group whom we Skyped with in detail from the basement of Bosler, producing two outstanding finalists. Then we moved on to campus visits, gathered extensive student and faculty—as well as contributing faculty—input and finally offered the position to Kristin Ditzler Strock, a Central Pennsylvania native (from Annville, near Lebanon Valley College). Kristin accepted enthusiastically and is now completing her Ph.D. at the University of Maine-Orono. She will be joining us before the fall semester starts when she and her husband move to Carlisle. ([Read more about Kristin](#)).

Meanwhile, the year was filled with numerous activities and events. The fall semester saw the Natural History Mosaic, taught by Gene Wingert—our field biologist, Marcus Key—Earth Science’s paleontologist, and myself—in my role as English professor, focusing on a series of amazing activities in class and out – trips to the Smithsonian, the Carnegie Museum, the State Museum, the National Aviary, and Port Isobel near Tangier Island in the middle of the Bay, along with fabulous field experiences banding saw-whet owls at King’s Gap Environmental Center, trapping turtles,

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1 Professors Marcus Key, Ashton Nichols, and Gene Wingert accompanied students to Port Isobel Island in the Chesapeake Bay as part of the Natural History Mosaic this fall.

watching hawks and eagles on North Mountain, collecting insects, and living with the largest elk herd east of the Mississippi for several days. All in all, our Mosaic revealed the sorts of teaching and learning opportunities that are only available at a place like Dickinson. ([Read more about the Mosaic](#)).

Speakers for the year included a remarkable range of environmentalists linked to a series of lectures sponsored by CES (the Center for Environmental Sustainability) and supported by the Clarke Forum, "Living in a World of Limits": Michael Shellenberger, founder of the Breakthrough Institute with its technology-supporting and controversial take on the New Environmentalism; David Orr, director of the Oberlin Project and promoter of islands of local environmental sanity in the middle of a sea of climate-changing madness; Peter Bechtel '81 and Ruth Mkhwanazi-Bechtel, sustainable development and global health experts in Mozambique; and finally Bill McKibben, the journalist, author and activist, and founder of 350.org, the worldwide climate-change organization. Bill is the person who, as much as any single individual right now, is identified with the possibility of effective environmental activism. ([Read more about Bill McKibben's visit to Dickinson](#)).

Other environmentalist visitors to Dickinson or to the department this year included Michael Mann, Director of Penn State's Earth System Science Center and a leading climatologist; Ingo Mose, Professor for Applied Geography and Environmental Planning at the University of Oldenburg, who was joined by Carmelita Görg, Associate Rector from the University of Bremen for a meeting with me and Michael Heiman about possible expansion of the environmental connection between Dickinson and Bremen. Even Robert Bullard, the so-called "father" of the Social Justice movement in America and campaigner against environmental racism and urban exclusion by environmentalists, came to campus in April as a guest whose visit was organized by Dickinson's student-run *Earth Now* chapter—and its hard-working president, sophomore Sasha Reagan—for SpringFest and our celebration of Earth Day.

Even with all of this activity, I must say that next year looks almost as exciting. The Luce funded grant for the development of programs related to Asia and the Environment will bring Kelin Zhuang, a scholar and scientist in geomorphology, glaciation, oceanography, and GIS, who has his Ph.D. from Texas A&M, to serve as a research postdoc and teacher for our department and earth sciences. In addition, Lisa Jackson, President Obama's first administrator of the EPA (Environmental Protection Agency) will be here in September to receive the second Rose-Walters Award, and climate-science pioneer Jim Hansen will be joining us in November to receive the Priestley Award, Dickinson's premiere award designated for a natural scientist.

This summer, I will be turning the reins as Department Chair over to Greg Howard, our energetic environmental health specialist who is just returning from his fellowship year at the U.S. Environmental Protection Agency in Washington, D.C. Greg will arrive at precisely the time when the department requires his expertise for guidance on a whole range of complex questions about our courses, our major, our minor, and the future of our curriculum and co-curriculum. I look forward to remaining closely and actively involved in the work of the department and its programs, especially those related to environmental humanities and ethics.

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ONLINE COVERAGE OF SOME OF THE PEOPLE, ACTIVITIES, AND EVENTS MENTIONED ABOVE:

[Interest in Environmental Majors Soars](#)

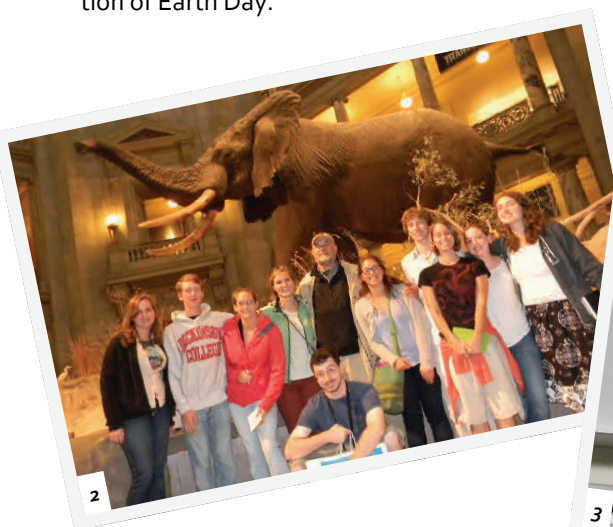
[Natural History Mosaic](#)

[Bill McKibben and 350.org](#)

[Robert Bullard](#)

[Jim Hansen](#)

[Lisa Jackson](#)



2



3



4

2 The class gathers around the Smithsonian's iconic bull elephant; at 8 tons and 14 feet tall, it is an astonishingly large example of an African elephant. He has stood in this lobby since 1959. 3 Prof. Nichols reads from his book, *Beyond Romantic Ecocriticism: Toward Urbanatural Roosting*, at an Earth Issues seminar.

4 A toast to the Class of 2013 at this year's graduation reception. The department had more than 30 graduating seniors this year.

How I learned to stop worrying and love TSCA

by Professor Greg Howard

Those of you who've taken classes with me might recall a certain fixation on the subject of flame retardants. I like this example because it demonstrates some of the most difficult problems with chemical regulation. Flame retardants are produced in the tens of millions of pounds a year; they're found in couches, electronics, and building insulation; and they can now easily be found in our house dust and in our blood. Despite this widespread exposure, the health effects of flame retardants, if any, are very uncertain – but the discussion is enough to make students shift uncomfortably in their flame-retardant-laden classroom chairs.

So it may come as no surprise that I've spent this year at the US Environmental Protection Agency's Design for the Environment (DfE) program working on flame retardants in furniture. I'm here as a Science and Technology Policy Fellow through the American Association for the Advancement of Science (the organization which publishes the journal "Science"). The AAAS Fellowship program is designed to place scientists in the federal government for hands-on training in science policy. My fellow Fellows are placed in agencies ranging from NASA to the US Agency for International Development, in the State Department, or as Congressional staffers, working on issues from Antarctica to Kazakhstan, or right here at home.

It's been a remarkable experience, and it has certainly opened my eyes to the policy world. I thought I knew environmental policy pretty well before I started, but my textbook understanding certainly did not capture the complexities of policymaking in the real world. Industrial chemicals such as flame retardants, for example, are regulated under the Toxic Substances Control Act, which is unchanged since 1976 (yes, there will be a quiz at the end of this article). But TSCA provides the EPA with scant authority to regulate or even to track things you might expect that it should. For example, the EPA has no mechanism to track what flame retardants are used in what items of furniture, and relies instead on academic researchers who take apart couches and test the foam themselves. And did you think chemicals were tested for safety before being put into production? While the overworked New Chemicals Program attempts to identify those newly created chemicals that have

the most potential for risk, hundreds of chemicals enter the market every year with no testing at all.

So for the past ten months, I've spent a lot of time researching flame retardants, the regulations that require their use, and their alternatives. I've had the chance to talk with industry leaders, expert chemists, and nonprofit advocates to discuss everything from specific flame retardant chemicals, to proposed changes to regulations, to new ways to assess chemical hazards. I've learned a tremendous amount from my fantastic DfE colleagues on all sorts of subjects, and it's broadened my understanding of my own field – and, more importantly, it's challenged the way I think about chemical hazards.



1 Professor Greg Howard leads students in his ENST 310 Special Topics in Environmental Science class on a bike ride around Carlisle to monitor air quality.

Of course, there's a lot more to the EPA than flame retardants. The Design for the Environment branch in particular takes a cutting-edge approach that's focused on assessing alternatives to chemicals of concern. If you're a particularly sharp-eyed shopper, you might have noticed the DfE logo on some cleaning products, indicating that the office's tiny 10-person staff has evaluated every chemical in the bottle, and that the resulting product is among the safest in its class. I've been continually impressed with the energy and

helpfulness of EPA staffers, and with their dedication to the protection of human health despite a woefully insufficient regulatory structure.

It's been amazing to be working in DC, at the seat of government. I've lunched with Congressional staffers, and stood in the crowd before the Supreme Court the day California's Prop 8 was debated. (I never did get the chance to meet former Administrator and Rose Walters Prize winner Lisa Jackson during her tenure at the EPA, but I'm pleased that I'll have the chance to see her on campus at Dickinson this fall.) Hanging out with the other Fellows – every one of whom is a scientist with a strong interest in policy – is always a learning experience, whether we're at a meeting, a happy hour, or at DC Nerd Nite. And the city hosts some truly world-class meals; the food trucks at lunch are often excellent, and the

Ethiopian restaurants here simply have to be experienced.

I've had a great year, but I'm itching to get back to Dickinson. When Professor Roger Turner's Environmental Policy class visited DC in April, it was a breath of fresh air to get to speak with students again. It'll be great to get back to the classroom – and to the Farm and the Handlebar! I've missed my wonderful colleagues in the ES department, who have been so tremendously indulgent and supportive while I snuck off for a year and had a fantastic intellectual experience. I'm sad that Ash Nichols is stepping down as department chair, but I'm so thankful for his service in leading our department over the past year. I know we'll stay closely connected to Ash and continue to integrate his work on "environmental humanities" into our curriculum. As I take over leadership of the department, I'm looking forward to helping us negotiate the transition period we find ourselves in: With our rapidly growing pool of majors; with new faculty arriving; and with the phased retirement of both Candie Wilderman and Mike

Heiman, who've provided inspiration and leadership for our department for decades. We've got a lot of challenges to meet over the next few years, but we could not be better positioned for doing so – and I am excited to get back to work.

The year rushed by so quickly; in hardly more than a month, classes will be starting up again. This fall, I'm excited for the chance to teach Environmental Health Research Methods again. Will we be taking apart chairs to analyze them for flame retardants?

Stay tuned!

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2 Professor Greg Howard with students of ENST 310 during a water quality sampling field trip to the Yellow Breeches.



An Update from Candie Wilderman

by Professor Candie Wilderman

Hello there alums!

First of all let me just start by giving a big thanks to Emily and Deb for stepping right up and being sure that our annual newsletter does not skip a beat! We are so pleased to have them on board!



This year has been a major year of transition for me as I have completed the first year of my three-year phased retirement. Fall semester brought me a new granddaughter, Naiya Hart, born on my Dad's birthday (my Dad had passed away about a year before she was born) – thus is the way of the universe. So during my fall semester, I helped my daughter and son-in-law with their two little girls (only 16 months apart) and enjoyed grandmothering more than I had imagined I would! They have also spent a good part of the summer with us, filling up our house and our hearts.

Spring semester I taught Aquatics and had a wonderful field trip to Smith Island. Whenever I go to the islands, I bring you all with me – so many great memories of trips there over the years – crabbing, scraping, propping, marsh exploring, mud mucking and interacting with watermen families. Climate change has finally caught up to the islanders and there are new issues of how to handle rising sea level and increasing storm frequencies in such a vulnerable environment.

I also taught a new course on the impact of climate change on biodiversity – building on a senior seminar that I taught the year before. The class was a mix of ES and BIOL students and the interest level was really high. So we all learned together – the best way to teach! I've always been quite interested in biological conservation, and so I was grateful to have the opportunity to explore the field with such an eager and intellectually talented group of students.

I'm still working closely with ALLARM, as we have grown to become national leaders in the shale gas monitoring movement. We are also working with the broader academic community interested in public participation in scientific research, serving as one of the premier models for community-based participatory research. The concept of using volunteers for data collection to address scientific, health, social and economic concerns is growing internationally. We have a wonderful staff and three full-time directors – a far cry from the old days when the office was a table in the back room of my office in James!

As always, I love to hear from alums and to learn about your doings. Stay in touch!

Warmest wishes to all.

Candie


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1 Candie with granddaughters Eden and Naiya. 2 Spring 2013 aquatics class at Smith Island

The Rose-Walters Prize for Environmental Activism: Bill McKibben and Lisa Jackson

by Ashton Nichols, Chair

Bill McKibben visited Dickinson on April 11th, 2013 to share his message about climate change and the value of divestment from major fossil fuel corporations. As the first recipient of the Sam Rose '58 and Julie Walters Prize at Dickinson College for Global Environmental Activism, McKibben received Dickinson's first ever \$100,000 prize for his work as a journalist, author, educator, and climate activist through 350.org – the organization he and a group of students founded at Middlebury College. His visit to Dickinson included a wide-ranging series of activities from conversations with students, a meeting with our newly formed "divestment group," and a public lecture that drew a large crowd of students, faculty, staff, and townspeople.  [Bill McKibben at Dickinson](#)

When Bill came to visit my class on "Ecocriticism"—after all of their good reading of his works—I told them that they had one assignment for the day that this world-class author and climate activist joined us in Dickinson's outdoor classroom behind the new Tome: each student had to bring a "world-class question," a question that got to the heart of the global climate challenge, and my students delivered well. My first student said, "Mr. McKibben," "Just Bill," he said, "O.K. Bill; what do you say to people who have worked all of their lives to achieve the American dream,



Bill McKibben (left) meets with Walter E. Beach '56 Distinguished Chair in Sustainability Studies Ashton Nichols' Eco-Criticism class.

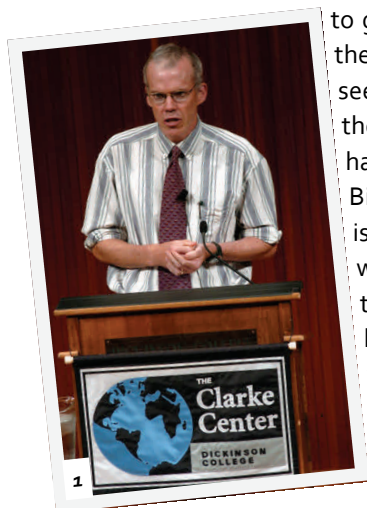
to get to the high standard of living they were always told they were seeking, and now you are telling them to cut it off, to stop, to call a halt. How will that work?" "Well," Bill pondered for a moment, "that is a very good question to begin with, because that question gets to the heart of the problem. You have to begin by telling them the truth. You have to tell them that

their own standard of living is now contributing to the problem, and that after all they heard from their parents and grandparents –and maybe more—that they are helping to drive the earth's atmosphere far beyond the level it has held in a relatively stable way for 10,000 years of the Holocene era, and that now they—and we all—are threatening life and living things on this planet as we know it."

The students listened and they asked good questions, and some great questions, and a number of questions that were indeed world-class, and Bill responded graciously and generously, and sometimes he asked questions back to them. Sometimes the students talked back-and-forth to each other, and so we had that kind of class that makes college worth the effort, a class where everyone was asking—because we wanted to know—and everyone was listening, because we cared what other folks were saying. At the end of 75 minutes we were not content with what we had learned, but that was right for the occasion. Bill ended by talking about Dickinson, and about economic divestment, about the importance of actions that will make it clear where all of our commitments lie. The students told me later that, although they were not totally convinced, they now wanted to learn a lot more about divestment during the apartheid-era in South Africa, and about the Dickinson endowment (c. 380 million as of March 2013) and about how even our mostly small, mostly symbolic act, might make a difference.

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1 & 2 McKibben addresses the crowd of more than 600 during his April 11 lecture, "Front Line of the Climate Fight."



As McKibben's own website notes, "Bill McKibben is the author of a dozen books about the environment, beginning with *The End of Nature* in 1989, which is regarded as the first book for a general audience on climate change. He is a founder of the grassroots climate campaign 350.org, which has coordinated 15,000 rallies in 189 countries since 2009. *Time Magazine* called him 'the planet's best green journalist' and the *Boston Globe* said in 2010 that he was 'probably the country's most important environmentalist.' Schumann Distinguished Scholar at Middlebury College, he holds honorary degrees from a dozen colleges, including the Universities of Massachusetts and Maine, the State University of New York, and Whittier and Colgate Colleges. In 2011 he was elected a fellow of the American Academy of Arts and Sciences."

The next visitor in the Rose-Walters Award series is Lisa P. Jackson, President Obama's first administrator of the U.S. Environmental Protection Agency, who resigned from her

post earlier in 2013. She first visited the Dickinson campus during Commencement this year to receive her own award for her work on air and water quality standards, on behalf of social justice, and for increased awareness of urban environmentalism. She is now environmental director at Apple Computer Corporation. When I spoke to Jackson in May, she assured me how much she was looking forward to her return to campus this fall. She will be here on September 26 and 27, visiting classes, serving on a public panel on "Citizenship and Partisanship," and delivering a public lecture. Jackson trained as a chemical engineer and is the first African-American woman to head the EPA.

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3 Lisa Jackson accepts the 2013 Rose-Walters Award at commencement.



Interest in Environmental Majors Soars

by Tony Moore, Writer

The enrollment numbers are in for Dickinson's Department of Environmental Studies & Environmental Science, and growth shows no sign of slowing down. As the department enters its 19th year on campus, the class of 2014 has more than four times the number of majors as did the class of 2007—jumping from 10 to 43.

"Several obvious reasons help to explain why the number of environmental-studies and environmental-science students is growing so rapidly," says Ashton Nichols, Walter E. Beach '56 Distinguished Chair in Sustainability and chair of the department. "Dickinson has one of the oldest and most well-established programs in the country, and the entire mood of our current student generation is a key factor in attracting students."

Dickinson's incorporation of sustainability issues into its very lifeblood is also playing a role. The creation of the Center for Sustainability Education and the increasing emphasis on sustainability in all aspects of college life also have attracted students to the school and the department.

Nichols cites the sustainability-infused curriculum, green-leaning campus facilities efforts, the organic farm and the presence of eco-reps in the dorms as factors that place the college's environmental stance front and center for current and prospective students.

Up from 54 in 2010, there are currently 106 students enrolled as environmental-science or environmental-studies majors (with numerous sophomores preparing to declare). Dickinson offers a B.S. in environmental *science* and a B.A. in environmental *studies*, so that students can approach their discipline from a natural-sciences perspective (by emphasizing laboratory work and fieldwork) or a social-

science and humanities perspective (by emphasizing policy, economics and philosophy).

"In both degrees," Nichols says, "students get a solid grounding in the intensive study of the environment (aquatic and terrestrial) and also in the historical and cultural backgrounds to current environmental issues and problems."

The fieldwork aspect of an environmental-science or environmental-studies major's curriculum can be vast, and, as Nichols says, "As is so often the case at Dickinson, students can supplement either degree with fabulous overseas study opportunities in places like Costa Rica, India and Great Britain, among others."

"Dickinson has a growing reputation for sustainability and an interesting assortment of opportunities in regards to working on sustainable projects," says Annaliese Ramthun '13, an environmental-science major. "The majors tends to be pretty close-knit, because we spend a lot of time together in labs and share extra-curriculars like environmental clubs or jobs with the farm and ALLARM."

Nichols also cites Dickinson's co-curricular and social opportunities, noting field trips to places such as the Chesapeake Bay and the Mississippi Delta and local internship options—at the farm and with the Biodiesel Program, for instance—as reasons the department has been so popular with students.

"Our students care about the environment," Nichols says. "They worry about global warming, and they see the idea of sustainability as something they want to incorporate into their lives, whatever they go on to do after graduation."

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The 3,400-acre Florence Jones Reineman Wildlife Sanctuary is one of several sites where environmental science and studies students can conduct field research.

An Update from CSE

by Lindsey Lyons, Assistant Director, CSE

Improving the human condition, equitably, sustainably and within limits that protect the natural environment, is perhaps the critical challenge of the 21st century. The [Clarke Forum](#) and the [Center for Sustainability Education \(CSE\)](#) hosted a seminar series in Spring 2013 that explored this challenge from multiple perspectives that spanned and integrated the arts and humanities, social sciences and natural sciences, with a goal of informing the continued infusion of sustainability across the Dickinson curriculum. Topics ranged from the local to the global and included practical models for building sustainable communities; social, environmental, and health effects of developing natural gas in Pennsylvania and Mozambique; social movements to combat global climate change; and interpreting and responding to planetary boundaries.

The seminar series, entitled *Living in a World of Limits*, was comprised of a 14 member Dickinson faculty study group, the Baird Honors Colloquium for students, and classroom visits and public events for a series of high profile visiting speakers. This series demonstrated Dickinson's commitment to global sustainability through the interdisciplinary liberal arts lens. Dickinson hosted the following speakers as part of the series:

- Michael Shellenberger, "Love Your Monsters: Why Technology will Save the World"
- Peter Bechtel '81 & Ruth Mkhwanazi-Bechtel, "Sustainable Development in Mozambique"
- David Orr, "Designing Resilience in a Black Swan World"
- Bill McKibben, "Front Line of the Climate Change Fight"



Many members of the Dickinson community were able to interact first hand with these world-class speakers and leaders. For example, McKibben, the Schumann Distinguished Scholar at Middlebury College, is the author of a dozen books about the environment, including *The End of Nature*; *Deep Economy: the Wealth of Communities and the Durable Future*; and *Hope, Human and Wild*. McKibben is the first recipient of the Rose-Walters Prize at Dickinson College for Global Environmental Activism. During his public lecture, McKibben spoke about the [350.org](#) campaign for divestment from fossil fuels, the science behind the fight, and the evolving politics. He also met with student leaders on campus as well as clubs and organizations to encourage students to be engaged learners.

You can view many of the outcomes of the series on the [Living in a World of Limits Blog](#) that includes the work for faculty and student participants. Or, [view a list of past programs](#).

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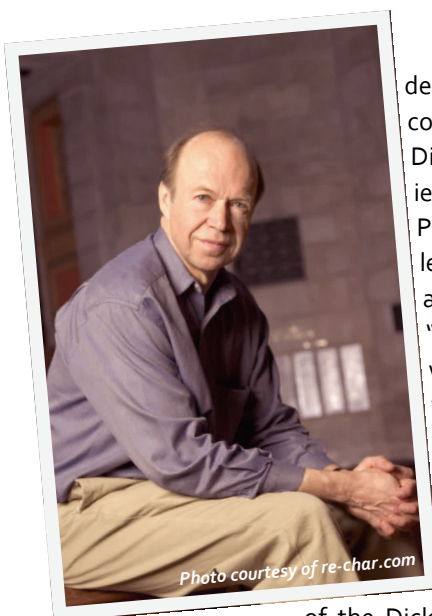
WATCH THE CLARKE FORUM LECTURES:

- [Michael Shellenberger](#)
- [Peter Bechtel & Ruth Mkhwanazi-Bechtel](#)
- [David Orr](#)
- [Bill McKibben](#)

1 Matt Steiman, Assistant Director of the Dickinson College Farm and Biodiesel Technical Advisor, shows Clarke Forum guest David Orr the biogas digester built by ES major Evan Kendall ('12). **2** Posters advertising some of this year's Clarke Forum guests.

The Joseph Priestley Award: Dr. James Hansen

by Emily Thorpe, Academic Technician



The Environmental Studies department is excited to welcome Dr. James Hansen to Dickinson College as the recipient of this year's Joseph Priestley Award. The Priestley Award and lecture is an annual celebration to honor "a distinguished scientist whose work has contributed to the welfare of humanity." The award was first presented in 1952 in memory of Joseph Priestley, the discoverer of oxygen whose scientific equipment is part

of the Dickinson Archive's Special Collections. Each year, different science departments are given the opportunity to present the award to a researcher in each respective field. Previous recipients of the award have included Edward O. Wilson, Francis H.C. Crick, Melvin Calvin, and Carl Sagan – just to name a few.

Hansen will be visiting the Dickinson campus on November 7th for the award ceremony and lecture, *White House Arrest and the Climate Crisis* at 7 pm in the Anita Tuviv Schlechter Auditorium. He will also be meeting with students, faculty, and staff during his visit.

Recently considered NASA's premier climatologist, Hansen retired in April of 2013 after 46 years of service. When the Environmental Studies faculty discussed who to select for this prestigious award, they unanimously agreed that climate change was today's hot-button issue. They then agreed that Dr. James Hansen, more than anyone else, has increased our understanding of the impacts of climate change, not only scientifically and politically, but in perhaps the most important way – publicly. "He's done the most important science on the most important question that there ever was," said Bill McKibben, a recent visitor to Dickinson College and recipient of the Rose

-Walters Prize for Global Environmental Activism.

It is not often that scientists break away from their strict objectivity in order to contribute to intense political debate and wavering public knowledge, but Hansen's feelings on climate change and the government's failure to act have become well-known. As the evidence of climate change mounted and governments, including the U.S., failed to take action, Hansen assumed the role of political activist as well as scientist. He has participated in climate change protests and has been arrested on more than one occasion for his efforts. At this stage in his career, he has clearly become more concerned with furthering public knowledge about climate change than with having a rap sheet.

His retirement also signifies a significant turning point judicially – as a government employee, Hansen was not able to testify against the government; however, he will now be able to do so. He plans to become more active in lawsuits against the federal and state governments for their failure to limit emissions and protect future generations. Hansen also



*Dr. James Hansen was arrested while protesting the Keystone XL Pipeline outside the White House on August 29, 2011 .
(photo courtesy of washingtonpost.com)*

plans to continue his scientific work and has not ruled out establishing a small institute or accepting an academic appointment. Hansen was recently awarded the 2013 Ridenhour Prize for Courage from the Fertel Foundation and the Nation Institute. When asked how it is that he stays hopeful given everything he knows and understands about climate change, Hansen responded "Well, that's fairly easy because if you look at our planet and nature, it's so incredible."

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FOR MORE INFORMATION ON DR. JAMES HANSEN:

[James Hansen: The One Thing We Should Be Doing to Prevent Catastrophic Climate Change](#)

[Climate Maverick to Retire From NASA](#)

[NASA's most famous climate scientist is retiring. Here's a look back at his work.](#)

The Natural History Mosaic: Paleontology, Field Biology, and Nature Writing at Dickinson College

by Professor Gene Wingert and Ashton Nichols, Chair

This past semester, 10 Dickinson students and three faculty members—Marcus Key, Ashton Nichols, and Gene Wingert—participated in the first-ever Natural History Mosaic. This regional mosaic was “the experience of a lifetime” for these 10 students. Molly Anderson '14 reflected “on the very first field trip, I knew this would be a great experience, when I found myself chasing insects at the College farm.” “This made us feel like a bunch of 10-year-olds,” she added, “and I knew this was going to be a very exciting semester.”

Our Mosaic’s goal was to introduce students to the literature of natural history, the history of the earth, and the ways that the past connects to the current natural history of the planet, especially in our own Mid-Atlantic region. The first trip of the semester headed to Powdermill Nature Center, the field research-station for the Carnegie Museum of Natural History in Pittsburgh. Here, the students worked closely with Walter Meshaka, curator of zoology and botany for the State Museum of Pennsylvania. Meshaka has conducted research on the reptiles of Powdermill for the past decade. The students became immediate and active participants in this research. They collected data and handled snakes that were retrieved from corrugated-metal cover boards.

Our second class field-trip journeyed to the Chesapeake Bay, leaving on an afternoon when gale force winds (35 knots, c. 40-50 mph) closed the Bay Bridge to trucks and almost prevented us from reaching our Crisfield to Port Isobel water crossing. For the next three days, students and professors alike learned the ways of the unique Chesapeake waterman along with many of the important issues facing the threatened Bay. The students dredged from the boat, with their “haul” including a variety of creatures: a seahorse, a pipefish, and a host of crustaceans. They also set crab traps, re-



trieved a full half-a-bushel, and enjoyed eating fresh soft-shell crabs caught and provided by the local mayor of Tangier Island.

We traveled to Tangier for one afternoon, where we visited the new island museum of local Chesapeake culture.



“That’s a red tail,” Grove said, pointing above, and everyone around him quickly tuned their attention to the sky.

Captain Wes, our more than able boat-captain, was a waterman by trade for several decades, and he gave us all a great deal of first-hand knowledge about the lives of those who live in this remarkable environment. Leigh Ratino '14 noted that the high point of her Mosaic was “diving into the mud [and muck] in the salt marsh.” Within a week of returning from Maryland and Virginia, the class headed to Elk County, Pennsylvania to view the largest elk herd east of the Mississippi (c. 800

examples of *Cervus canadensis*) under the guidance of Randy Cassell, a superb local naturalist and teacher. Everyone also enjoyed a chilly campfire chat with Ralph Harrison, the premier elk expert in Pennsylvania and writer of one of the class’s textbooks.

By this time, the Mosaic students were a tightly bonded unit, since they had to prepare meals, clean up rooms, and generally pitch in for all of us on both trips. Many of the

Continued on Next Page...

1 “Tangier Island is a center of crab and bay culture,” explains Ashton Nichols. “They speak a strange dialect that people claim has connections to Elizabethan English. They have interesting vocabulary words that aren’t apparent anywhere else.” **2** Gene Wingert serves as the Mosaic’s videographer, capturing the broad strokes and fine details of each prong of the project.



academic activities of the class also required a collaborative team-approach, from catching turtles and banding saw-whet owls, to fossil hunting and essay-writing workshops. During the Elk County adventure, students set live mammal-traps constructed from metal food cans; their captures included mice, voles, and chipmunks. Next, a quick visit to the studio of Don Phillips, a local naturalist and artist, clearly illustrated yet another aspect of natural history.

The next class adventure was turtle-catching at Wildwood Lake, north of Harrisburg. This was the first of three investigations into community-science, serious research that involves projects so large that one researcher cannot possibly gather sufficient data to draw meaningful conclusions. Therefore, students—or public volunteers—are essential to gather the necessary data. Our diligent mosaic-trappers captured 42 live turtles that they measured, marked, inserted with PIT (passive integrated transponders) tags, and then released unharmed back into the lake. Eller Mallchok '15 recalled that she had the “best adrenalin rush of the mosaic as I wrestled a large snapping turtle to take its measurement.” This turtle analysis and recapture is a long-term research project headed up by Scott Boback of Dickinson’s biology department. His data will be used to determine how long painted turtles live, how far they migrate, as well as their population numbers, sex ratios and other important information.

Melanie Campbell '15 loved all of our “out-of-the-classroom work.” Students also participated in the long-term and well-known Waggoner’s Gap hawk watch north of Carlisle. Waggoner’s Gap is one of the foremost hawk-watching locations in the interior United States. Dave Grove, current coordinator for Waggoner’s Gap, provided a remarkable amount of information in his narration during the hawk-watch. The mosaic students also participated in saw-whet owl banding. This program is part of a nationwide research effort to learn as much as possible about this diminutive and elusive owl. The students participated in both the recording of data and the dark woodland-releases of the banded owls.

Sam Azzaro '15 declared, “as I sat alone in the woods on a predator-watch, listening to the wind rustle through the leaves, I had a Zen moment.” He was not alone.

Indoors and away from the field, the mosaic class visited four fabulous museums, from the Smithsonian Institution in Washington, D.C. and Harrisburg’s State Museum, to the Carnegie Mu-

seum of Natural History in Pittsburgh and the Joseph Priestley House in Northumberland, Pennsylvania. In each of these museums, students were treated to special behind-the-scenes tours, able to observe researchers close-up and learn directly from a MacArthur Genius Grant winner or one of the world’s leading paleontologists. Two of our visits provided unique insights into

the historical roots of Dickinson College. At the Smithsonian, we viewed parts of the specimen collection of Spencer Fullerton Baird, a former Dickinson student and professor and the second director of the Smithsonian. Many of the scientific instruments of the British natural philosopher and chemist Joseph Priestley, discoverer of oxygen, were left to Dickinson and now reside in the Waidner Spahr Library archives. We visited his well-preserved museum home to complete our understanding of his life. Finally, the students prepared museum specimens that were donated to the State Museum of Pennsylvania in Harrisburg. These individual specimens—insects, amphibians, reptiles, and small mammals—have become part of the permanent natural and scientific record of our state, identified with the individual student’s name and appropriate data for all time.

Shea Sweeney '14 summed up the entire Natural History Mosaic well: “it was great hands-on experience with lots of field experience with many great naturalists and interesting people.” Steven Finley '15 and Devin Murray '14 especially enjoyed the one-on-one contact with the various professors: a paleontologist, a field biologist, and a literature and writing professor. At the close of the semester, the entire class gathered for a catered dinner party to which we invited all of the museum and field presenters and naturalists we had met during our courses, a fitting end to an entirely exciting and enriching semester.

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3 The Mosaic class caught three large snapping turtles during its project to protect the painted turtle from the slider. 4 A happy entomologist shows off her careful (and sustainable) collection.

FOR MORE INFORMATION ABOUT THIS MOSAIC:

[Writing about Natural History—A blog by Ashton Nichols](#)

[Mosaics Afield](#)

[King Phillip Came Over for Good Soup](#)

[Raptor Shadows on the Sleeping Blue Lady](#)

[Crabbing with Ooker](#)

[Video Shorts Highlight Fall Mosaic](#)



An Update from the Itinerant Geographer

by Professor Michael Heiman

It has been a year for momentous change at the college level (with the retirement of the Durden Administration and welcoming the incoming Nancy Roseman Administration), for the department (with Kristin Strock, Emily Thorpe, and Deb Peters joining us and approval for a new faculty line in environmental social sciences for the fall), and for me personally as I adjust to "phased" retirement. This has me officially on deck for about 60 percent of my previous commitment with the college but in reality somewhat less relieved of advising and college administrative duties. Hence---much more time for what any itinerant geographer loves, namely travel and research/teaching abroad.

This past summer I co-directed the new and very successful Dickinson College program in sustainability in Bremen, Germany. Here I spent 5 weeks with a dozen students exploring Germany's leadership with renewable energy, commitment to curbing greenhouse gas emissions, and ability to support a high standard of living at one-third of the U.S. waste generated per capita.



Bremen is beautiful with a car-free central city and a dense network of streetcars covering the greater metropolitan area. The biggest danger we ran into was mistakenly stepping into the bicycle lanes marked on every sidewalk, and almost being run over by the senior citizens peddling past. On the other hand, I must admit that while the Germans rarely whip out their cell phones in public and are not distracted by digital media (they consider it rude to cut oneself off from the surrounding community), I also found that most of my fellow commuters to the university each day were rather sullen, rarely laughing, or even smiling. When I did come across a merry crew, it was typically some Italian or Spanish riders--laughing as one German colleague explained, as the Germans bailed them out, while the Germans appeared dour, likely for the same reason.



Paula came along for the ride and we had a fantastic apartment at the university guesthouse right on the busy river across from the beer gardens--where Germans finally let loose, typically after a few "biers," at which point we could clearly hear drinking songs from otherwise rather stoic people. The students, from Dickinson and beyond, were fantastic--a great crew that did not (readily) succumb to finding themselves for the first time in an environment surrounded by beer where they were of legal age.

Other ventures had me presenting papers on "Educating for Sustainability: Can We Address the Oxymoron?" for the Fifth Living Knowledge Conference in Bonn, Germany and "Tightening Whose Belt?: Can a Carbon Tax Address Structural Problems Inherent To Neoliberal Carbon Markets?" for the annual meeting of the Association of American Geographers--both exercises that I am working on turning into published articles. Travel in support of conferences (or is it the other way around?) led me to a three-week sojourn in California and Nevada, returning to my favorite vista--the "backside" of the Sierra Nevada from Owens Valley.

On a more personal note, my mother passed away this past December, rather suddenly at age 88. A refugee from Germany and victim of Nazi atrocities, she chose life in word and deed, with a fierce devotion to personal independence, literally swimming, driving (in New York City no less), dancing, and enjoying life to the very end. She was, and continues to be an inspiration for my entire family.

So, with one more semester of ENST 330 (environmental policy) to go, followed by a sabbatical this coming spring, the lure of more time to read, write, and (of course) travel burns bright. I wish you well on your own travels as you build careers, families, and continue with your commitment to protecting the environment that supports us all.

Fondly, MH.



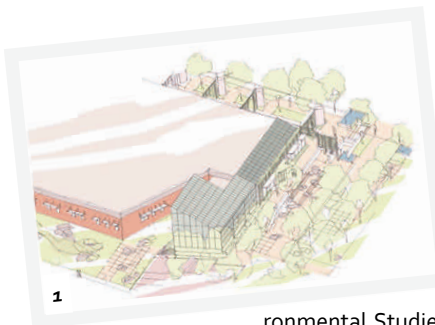
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1 With students in Hamburg. **2** Bill and Elke Durden visit the class in Bremen. **3** Hanging out with Karl (Marx) and Frederick (Engels) in Berlin. **4** In Nevada (Carson Valley).



New Interdisciplinary Greenhouse

by Emily Thorpe, Academic Technician



In the spring of 2013, Dickinson College opened the Dr. Inge P. Stafford Greenhouse for Teaching and Research after receiving a \$1 million gift from alumni John '59 and Inge Paul Stafford '58. The new interdisciplinary greenhouse sits on the south side of Kaufman Hall, home of the Environmental Studies, Earth Sciences, and Psychology

Departments as well as the Center for Sustainability Education (CSE) and the Alliance for Aquatic Resource Management (ALLARM). The ordinary parking lot surrounding the greenhouse is still being transformed into a unique campus green space, including educational stormwater management features, distinctive landscaping, and representative rock specimens.

On top of its aesthetic value, the greenhouse is "expected to have a transformative effect on sustainability education, interdisciplinary learning and the college's science curriculum." "The new-state-of-the-art facility will include:

- Three independent research zones
- A general-use greenhouse area
- Solar panels, which will help to offset the electrical consumption
- An adjacent classroom-lab that will allow students to move conveniently from the greenhouse into the classroom
- And a preparation potting area and climate-controlled laboratory, which are critical to experiments and research on marine ecosystems, seasonally dependent plants, and air quality."



Within the first few weeks of opening, the greenhouse was already showing off its interdisciplinary nature. Students and faculty initiated "projects on climate change, grape chemistry, salamander life cycles, and conservation of an endangered butterfly." "The beauty of this design is that you will see students and faculty representing all science disciplines – from biology and chemistry to earth and environmental sciences – under one roof, utilizing the resources of a modern, sophisticated research center. The greenhouse will be an incubator for interdisciplinary study in the sciences," says Tom Arnold, associate professor of biology. Students and faculty from Plant Physiology (Biology 325), the East Asian Studies department, and those participating in the College's new LUCE program also gathered at the greenhouse to learn the art of bonsai from local expert, Jim Doyle. [Return to In This Issue](#)

FOR MORE INFORMATION ABOUT THE GREENHOUSE:

[New Interdisciplinary Greenhouse](#)

[New Greenhouse Complete](#)

[Stafford Greenhouse Facility—Open for Classes!](#)

[Linking Science and Culture: The Art of Bonsai](#)

[LUCÉ Bonsai Specialist—February 28th](#)

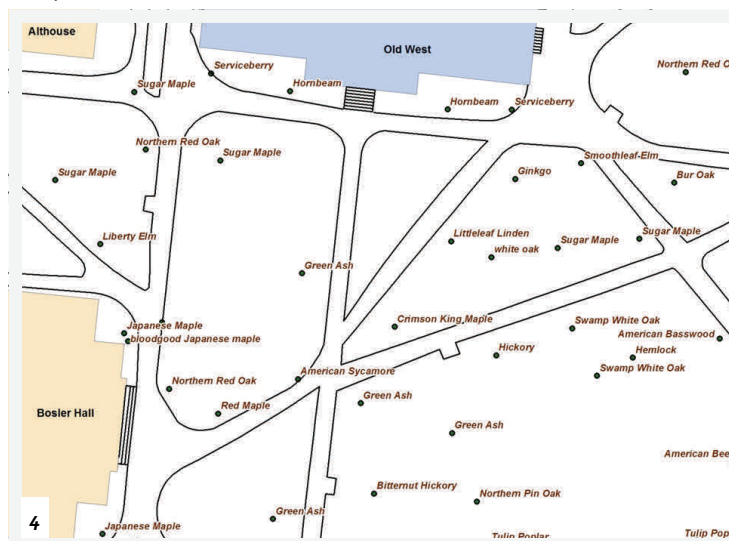
From Tree to Database

by Jim Ciarrocca, GIS Specialist



What's so special about a tree? Just ask Dickinson College's Arborist, Mark Scott, who has been heading up an ongoing project to inventory all of the trees on the Dickinson College campus using GPS and GIS. And there are a lot more trees on our small urban campus than you might think. Just over a third of the way done, Mark has worked with both students from the GIS program and interns from the GIS Lab to measure the location and record attribute data for over 700 trees. Mark and the GIS students use a mapping-grade Trimble GPS to plot the location of each tree and then record a variety of characteristics about the tree, such as species, height, diameter, and condition. The Trimble GPS unit is preconfigured with a set of data forms and pull-down menus that contain selections for all the possible features that Mark would want to record for a tree, so that as the GPS records the location, all of the attribute information is automatically stored in the unit as part of the data record. This makes the data collection process very efficient and much more accurate than simply writing notes on a piece of paper.

This is an ongoing project and as more data about the campus trees are recorded into the GIS, Mark hopes to eventually make the database accessible to any organization on campus who might find the information useful. For example, Facilities Management might use the data to facilitate its landscaping program; Advancement Services could identify trees of significant value that donors might wish to sponsor; or the Climate Action Task Force might find the data useful for computing carbon offsets in support of Dickinson's Climate Action Plan. Once completed, Mark also hopes to use the database to certify the Dickinson College campus as an official arboretum for the purposes of research, preservation, and education. For more information please contact Mark Scott at scottm@dickinson.edu.



1 Plans of the new Dr. Inge P. Stafford Greenhouse for Teaching and Research on the south side of Kaufman Hall. **2** Jim Doyle instructs a student in the art of bonsai. **3** This damage caused by a severe storm that tore through Carlisle in June 2010, underscores the need to maintain an accurate record of the trees on the Dickinson College campus. **4** Sample map illustrating the variety of tree species on the Academic Quad.

Environmental Science and the Open Road

by Anna Ramthun, '13



As an environmental science major I went through a variety of transformations in my behavior and the ways in which I view my surroundings. Some of these are obvious: the tendency to take reusable shopping bags to the store, the reuse of clothing items until they are undeniably worn out, the impulse to point out the browse line any time I'm passing through a forest that clearly has too many white tail deer. Others are more subtle, the skipping of the occasional shower, a suspicion of food that claims to be "natural", and an opposition to microwaving plastic.

These idiosyncrasies have made their way into my day to day life over the years. However, nothing brings them out like a long car trip. I can no longer imagine what a normal person sees as they drive along a highway. Like me, they might consider how fuel efficient their car is, worry that they are burning and paying for a lot of fossil fuel on this trip, and wonder if there might have been a better way to get there. However, this is only a small example of the strange ways in which my mind works on long drives.

Scenery is perhaps the biggest trigger of my considerations. Starting with the things I learned in intro classes, I contemplate the fact that most of the fields I am driving past seem to be monocultures. As monocultures they probably have a steep input of chemical pesticides and fertilizers, which are probably running off into that ditch running along the road. I drive past landfills and wonder about how well their leachate collection systems are functioning. At other

times, I will drive by a factory and wonder what its toxic release inventory is, and whether the surrounding town wants it there or is reliant on the revenue it brings in.

I then move on to things learned in my more advanced classes. Those buildings are clearly concentrated animal feeding operations. I wonder if that wetland is protected in any way, and which watershed that stream is feeding. Then I wonder about what kind of fish and macroinvertebrates it supports. If I were mapping this in GIS, how would I depict the differences in land use over this area?

The biology classes of my theme also play into my entertainment. Noting that the forest growing along the highway is mostly hardwood, has a healthy looking understory, and seems to have a lot of snags. Maybe that was because of the ice storm this winter. The highway here is lined with invasives like leafy spurge or garlic mustard. How does this not bother anyone else? Later, I try to identify the birds flying along the highway, or occasionally think to myself that if I knew anyone taking Natural History of Vertebrates that would have been an excellent road-kill specimen to direct them towards.

It is entirely possible that not everyone from the ES department has experienced this mindset when they're driving. I admit for me it is still a little strange, but I would guess that from time to time, one of these thoughts has crossed the mind of most people in our major. A thought of how their scenery influences them or someone else. Maybe they have entertained concern over the damages the road they travel is having on that scenery. Between point A and point B there are a lot of complex human and environmental interactions, and there is a lot to be considered in trying to sort them out.

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Sustainable Path: Tabea Zimmermann '15 becomes 2013-15 EPA-GRO fellow

by Tony Moore, Writer

Each year, the Environmental Protection Agency grants only about 40 [Greater Research Opportunities](#) (EPA-GRO) fellowships to undergraduate students across the country. This year, Tabea Zimmermann '15, an environmental science major, was one of those students, and the path she's taken toward this moment makes perfect sense.

"The environmental and social ethic I gained in my upbringing overseas and my strong Dickinson education have been the keys to where and who I am today," Zimmermann says, noting that she lived in Mozambique and Nicaragua until she was 10 years old.

The EPA-GRO fellowship provides winners—each deemed "future environmental leaders"—with up to a total of \$50,000 each over the course of a two-year period and a paid summer internship at an EPA facility between their junior and senior years.

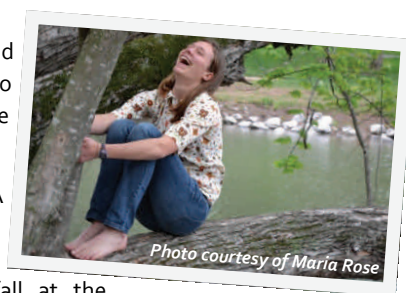
"This internship will be a wonderful opportunity for me to work with scientists on pressing environmental issues, including water-quality research and water-resource management," Zimmermann says. "I

know I will be challenged and pushed, and I look forward to learning and contributing to the research."

Zimmermann awaits her EPA assignment for summer 2014, but until then she'll continue pursuing her passions—this fall at the Marine Biological Laboratory in Woods Hole, Mass., and through a study-abroad trip to [Cameroon](#) next spring, where she hopes to work on water-resource management projects.

"As the world becomes ever more connected, humans around the planet face similar environmental and social struggles," she says. "I believe it's possible to share the strategies and ingenuity being harnessed in communities to help one another address these complex challenges, and it would be a privilege to help facilitate these connections."

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Life on the Farm

by Taylor Wilmot, '13



Since graduation I have not landed far from the Dickinson campus. I am currently located only seven miles away, in Boiling Springs, living in a yurt, on the Dickinson College Farm. I guess I just couldn't get away quite yet. During my senior year I was able to get more hands on experience at the farm then ever before, thanks to a class taught by Matt and Jenn, our one and only farm directors. This experience-based learning allowed me to build on my previous agricultural work and heightened my thirst for more knowledge. One thing led

to another, and I soon found myself excitedly accepting a six-month apprenticeship with the College Farm after graduation. I remember meeting seniors during my first-year at Dickinson who told me they wanted to continue farming after graduation, and I thought they were crazy! Little did I know that my time at Dickinson would lead me down a similar path.

As of July, I have been on the farm for almost two months with three other Dickinson alumni who all graduated in my class of 2013. We all came into the experience with varying amounts of agricultural and horticultural backgrounds. However, in this short period of time we have all gained an immense amount of insight into how Matt and Jenn run the farm on a day-to-day basis, as we work hard to follow in their footsteps. Managing a farm is an incredibly demanding (yet rewarding!) lifestyle, where lots of hard decisions are made on a daily basis. We learn that the to-do list on the farm is forever growing, which requires a lot of prioritization and planning ahead to keep our animal and vegetable production in an ideal state for the goals of our farm. The College farm production includes selling vegetables to the

Dickinson Cafeteria, preparing a weekly CSA for over 100 Dickinson community members, and having a stand as a weekly vendor at the local Carlisle Farmers' Market.

Since the end of May we have seen the farm transform from Spring to Summer, as the nights get hotter, the thunderstorms pass over often, and the fireflies fill the night air with a spectacular light show. I love that life on the farm allows you to observe and become so acquainted with the environment and land around you. We are subject to the ebbs and flows of our daily weather patterns and insect populations, how fast our weeds can grow, and how quickly we can pull them out of the ground before they set seed. Observing and experiencing these seasonal processes has been key to understanding the minds of organic farmers around the world.

Here at the farm I am learning how to manage our chickens and our greenhouses. Each of the four apprentices has a specific niche that they are focusing on in order to gain specific skills for future farm management. So far, I have already had the chance to experience raising and butchering our broiler chickens, which are now being sold to our CSA members and other interested customers. I also have the pleasure of caring for our laying hens, who entertain me each and every day with their unique personalities. When I am not romping around in the pasture, I am often checking on our seedlings in the greenhouse, as new plants are constantly germinating, and getting ready to be sent out into our fields. Working on the farm has allowed me to better understand the agricultural lifestyle and culture that surrounds the Carlisle area, and I look forward to gaining future insight in the months ahead. As food access, environmental justice, and sustainable agriculture continue to fill my head, I look forward to applying these skills to my future employment. Sending a good old "Yeehaw!" to all those Dickinsonian farmers out there, I wish you all the best.

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An Update from Michael Beevers

by Professor Michael Beevers

As I enter my third year in the Department of Environmental Studies, changes are afoot. We are continuing to experience tremendous growth as students enroll in the major at unprecedented rates. The Center for Sustainability Education has attracted students with an interest in environmental issues and our program continues to build on its reputation as a top-tier destination for those wanting to pursue environmental studies. I am continually impressed by the caliber of students we attract at Dickinson and in our department. They are not only intellectually curious and keen to learn but committed to contributing to a better future! I am continuously learning from our students and inspired by them. Cheers to that!

I have also been inspired by the extraordinary leadership of Professor Ash Nichols who joined us as the chair of the department last year. He will be stepping down from his duties but has done a remarkable job. I am very much looking forward to Professor Howard getting back to campus from his EPA gig, and taking over as ES chair, and pushing the department to even greater heights. I would also like to welcome our new faculty member Kristin Strock (Candies "replacement") and lab technician Emily Thorpe (Vallie's "replacement") – I very much look forward to working with them both in the years to come.

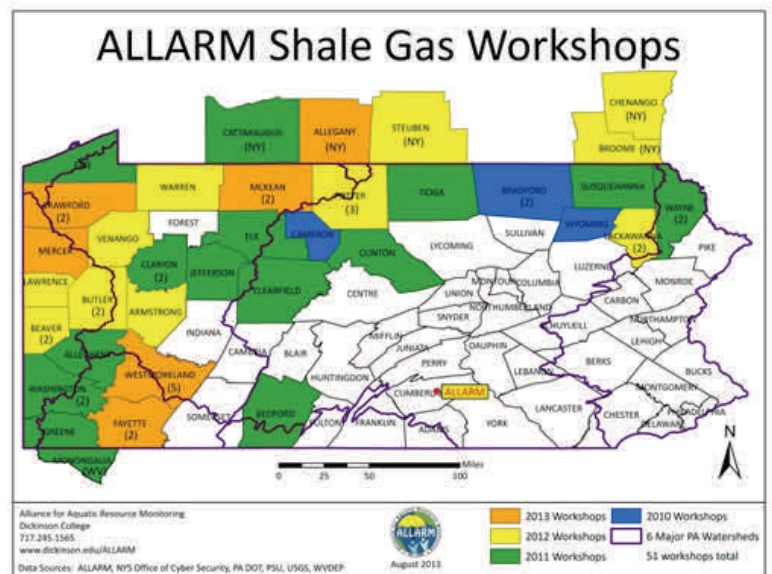
Anyway, I'll keep this short. I'm very much looking forward to the year ahead and making the department the best it can be. Feel free to send me an email, or stop by, if you are in town. To all Dickinson Alumna, stay in touch!

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ALLARM's Shale Gas Monitoring Program: 3 Years Later

by Julie Vastine, Director; Katie Tomsho, Assistant Director of Outreach; and Jinnie Monismith, Assistant Director of Technical Assistance

It is amazing how time flies to suddenly realize that the Alliance for Aquatic Resource Monitoring's (ALLARM) new shale-gas monitoring initiative is already three years old. Looking back to our first workshop illustrates how much of the program has grown but how certain aspects never change. Our first workshop (June 2010) was at the epicenter of shale-gas activities: Towanda Township, Bradford County, PA. Over thirty attendees crammed into the small wood-paneled room for an evening of presentations and discussion. There were dairy farmers, watershed volunteers, as well as employees from the county and the Department of Environmental Protection. The emotions in the room were high as people frantically shared experiences, expectations, and fears about the natural gas industry, with a repeated question hanging in the air, "what is the role of volunteers in monitoring impacts from shale-gas extraction on Pennsylvania small streams."



Three years after that first workshop, ALLARM has conducted 51 workshops – training over 1100 individuals, which has resulted in a network of over 500 volunteer monitors spread throughout 29 Pennsylvania, five New York, and soon to be two West Virginia counties. The volunteers are very diverse and include (to name a few), farmers, stay-at-home parents, religious leaders, municipal officials, watershed association members, and sportsmen. Their motivation for monitoring stem out of common concerns regarding environmental degradation, stream health, and uncertainty of long-term impacts from fracking on the health of their community. The focus of the ALLARM program is simple, to detect flowback water (the salty, metal-rich water that comes back to the surface during the fracking process) contamination and physical impacts from drilling activities in small, wadable streams. Volunteers are trained to use monitoring tools to determine if there is a pollution issue and to raise the "red flag" to regulatory agencies to respond to the event. Volunteers monitor three parameters at their stream weekly - conductivity, total dissolved solids, and stream stage. Also at their site, volunteers perform a visual inspection looking for associated impacts such as gas migration, spills and discharges, and erosion and sedimentation. In addition to their weekly chemical and visual monitoring, volunteers send water samples to a certified lab for two signature chemicals of flowback water – barium and strontium – twice a year.

ALLARM has five steps to working with shale-gas monitoring communities:

1. **Initial contact:** Communities contact ALLARM requesting assistance.
2. **Training:** ALLARM conducts a six hour workshop where participants learn about the science of shale-gas extraction, how to locate gas drilling sites, how to choose a monitoring site, visual monitoring, chemical monitoring, pollution reporting, data management and quality assurance/quality control.
3. **Quality control and baseline signature chemical analysis:** ALLARM works with new monitors to confirm that they are using their equipment correctly and receive samples for barium and strontium analysis.
4. **Data management & interpretation:** ALLARM assists communities in managing data from coordinating "data entry parties" to conducting additional training.
5. **Continual follow-up support:** ALLARM strives to be a constant, available resource for monitors. To facilitate communication, ALLARM hosts monthly calls, adds new resources to the [Shale Gas Monitoring Toolkit](#), and is going to launch a monthly newsletter this fall.



1 Courtney Blinkhorn '13 training, Lawrence County, PA

The success of this program is rooted in ALLARM's focus on collaboration. With an issue as complex and geographically expansive as shale-gas extraction, no one organization can do it all. In Pennsylvania, ALLARM works with county conservation districts and regulatory agencies to receive continual feedback on the protocol and build relationships so that when volunteers report a potential pollution event, their calls are responded to. ALLARM also works with Shale Network, SkyTruth, and CitSci.org on centralized data management. Additionally, ALLARM coordinates a service provider network (Delaware Riverkeeper Network, Kiski-Conemaugh Stream Team, Mountain Watershed Association, Trout Unlimited, and Water Dogs) to swap lessons learned, work on new training materials, and facilitate a coordinated effort. Within the past year, ALLARM has focused on making its shale-gas program resources more readily available. The new [Shale Gas Monitoring Toolkit](#) provides access to voiceover PowerPoints, data sheets, training videos, and much more. If a volunteer needs to revisit material from the workshop, all information is easily accessible through the Toolkit.

All of the student and full-time staff of ALLARM are engaged in the program in some form, including: conducting research on new facets of gas extraction, developing training materials, implementing workshops, processing quality control samples and so much more. ALLARM quickly learned in the program's second year that additional full-time support was needed – as a result of grants from the Colcom Foundation and Heinz Endowments, ALLARM hired an Assistant Director of Outreach to provide training and follow up support to Pennsylvania shale-gas volunteers. The Shale-gas Monitoring Program has created a new era, where ALLARM directors are traveling with student coordinators all over the region to conduct workshops and provide follow up assistance. Everyone who attends and runs these workshops leaves with new stories, experiences, and perspectives. One ALLARM student, Tabea Zimmerman ('15) explained:

Some of my most vivid and favorite ALLARM memories come from the shale gas workshops in which I have participated...The last workshop I helped present took place in Westmoreland County in Southwestern Pennsylvania. It was amazing the diversity of people who attended this event, from Tom the college biology professor, to Bruce the avid hunter, Dianne the landowner with natural gas wells popping up around her property, and Lewie, a man of many trades who had the state's most biodiverse wetland on his property. All attended the workshop with different interests and priorities and we had some lively conversations throughout the day.

It is clear that these workshops have immeasurable impacts. ALLARM not only empowers attendees and volunteers with scientific skills and knowledge, but with a lasting sense of hope and camaraderie. As described by Courtney Blinkhorn ('13):

One instance that made me realize the impact of our shale gas program was at our workshop in Tioga County. One of the volunteers approached me and explained that she was currently monitoring her local stream. She then said something that really stuck with me: 'I was starting to think that we were alone in this. Thank you so much for coming, it is a great thing that you are doing.' It was a very simple thing for her to say, but her appreciation gave me a better perspective of the true purpose of our job. Part of what ALLARM does is reach out to those who are concerned about the dangers of gas drilling and let them know that they aren't alone.

Throughout the past three years, a network has grown throughout the state of volunteers working together to monitor the impacts from shale gas extraction. ALLARM is proud and honored to be a part of such a strong, motivated community, and looks forward to continued success with this program.

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1 "You know you're an ES major when..." created by students during the 2012 winter party. 2 Intro to ES students collect macroinvertebrates. 3 ES students pose for a photo during the ES majors hike in November. 4 Michael Beevers Senior Seminar class visits Catoclin Wildlife Preserve and Zoo.

Cultivating Food, Education and Community at Dickinson College Farm

by Jenn Halpin, College Farm Director and Manager and Ali Frohman, College Farm Program Coordinator



The swaying of bright flowers, "blip" of toads slipping into strategically placed ponds, hums and whirrs of tractors and mowers, chuk-chuk-

chuk of a hoe carefully weeding a long bed of peppers, and scents of sweet tomato plants and spicy onions.

These are just a few of the sights, sounds, and smells of Dickinson College Farm in August. It is an exciting time to be a part of the student farm movement in the U.S. and your College Farm is an established leader in this growing niche of working farms at top liberal arts colleges.

In the words of Will Seward, Class of 2012, Earth Sciences:

"I haven't encountered anything else that has struck me as so applicable to global history and culture, nor as so vital to physical health and mental wellness. If there is any way for me to make a meaningful contribution to society after I leave Dickinson, I believe it is by imparting the knowledge, refining the skills, and emulating the work ethic that the farm has taught me."

2013 marks the 7th growing season at the Dickinson College Farm. This year, the farm is maintaining 8-10 acres of cultivated land to raise certified organic produce for the campus and local communities. New to the crop list are dried beans and experimental plots of lesser-known grains. We purchased a time-worn combine this winter that we aspire to keep alive and working, enabling the farm to branch out and try its hand at larger areas of cultivated land for beans, grains and other edibles. New year, new ideas!

Last season, the College Farm experienced a great growing season with minimal setbacks. Our new irrigation system ran smoothly and the land yielded record harvests of root crops like garlic, onions, potatoes and the biggest sweet potatoes we have ever seen! An average of 56.48% of the total produce purchased by the Dining Hall was from the College

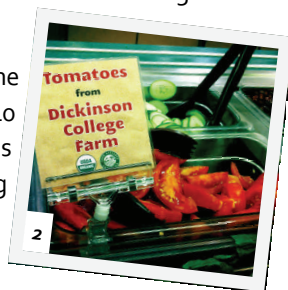
Farm. This percentage excludes Dining Hall orders of produce that the farm does not offer and is limited to the Pennsylvania growing season (May-November). Our top dining hall crops included Salad Mix, Slicer Tomatoes, Cherry Tomatoes, Zucchini and Bell Peppers. We donated a total of 2,354 pounds of produce to Carlisle's local food bank, "Project SHARE". Project SHARE estimated the value of the College Farm's donations at \$4,684.46.

New for 2013-2014: beef from the farm's very own cattle. We currently have 10 beef cows (and 1 baby). The farm also raises a small flock of sheep, a flock of laying hens, and broiler chickens.

Who else do we feed besides students, faculty, administrators and staff that eat in the cafeteria and other Dining Services locations? Members of the College Farm's *Campus* Supported Agriculture (CSA) program pay ahead for a 24-week subscription to a weekly or biweekly portion of the farm's harvest. Generally speaking, CSA stands for Community Supported Agriculture. CSA programs provide an innovative way for local farms to connect with local eaters. The College Farm CSA subscription starts in mid-May and runs to the end of October. In 2012, our CSA brought fresh produce to the tables of 130 families. Our membership increased to 145 members in 2013 and is currently at full capacity. We also continue to maintain a thriving stand at Farmers on the Square, a weekly producers-only market in downtown Carlisle.

The farm's role as a provider of sustainable agriculture and conservation education and research, primarily for Dickinson College students but also for community members, continues to expand! Over the course of the past year, the College Farm supported the development of three formal youth education programs: Sustainable Earth Education (SEED); Discover, Grow, Inquire (DIG) and Farm Cook Eat.

1 Harvesting garlic in July 2013 that was planted in October 2012. Fore-ground, L-R: Taylor Wilmot, Noah Burchard ('16), Jamie Bugel ('13) and Jenn Halpin Background: Matt Steiman on the tractor. **2** The College Farm and Dining Services have set a goal to increase the labeling of College Farm produce in the Dining Hall and Union Station. **3** Sam Bogan ('16) sells College Farm produce at Farmers on the Square, Carlisle's weekly farmers' market.

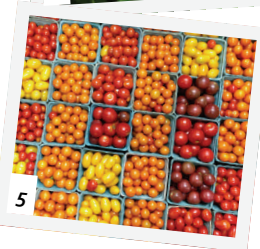




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SEED is an on-farm education program for area youth that offers a monthly workshop to children 5-12 years old. D.I.G (Discover, Inquire, Grow) is a collaborative initiative between the College Farm, CSE and ALLARM consisting of two one-week camps for local middle school aged children interested in learning about the environment, water quality and agriculture. Farm, Cook, Eat is an

after-school program that educates Bellaire Elementary school students about healthy and nutritious food through hands-on cooking classes. These three programs were developed and led by Dickinson College student employees and student volunteers.



5

We welcome Dickinson classes, prospective students, Dickinson alumni, student groups and departments to the farm for tours, labs, class projects and special events year-round. Jenn Halpin and Matt Steiman continue to collaborate with and support faculty from all departments in their courses, labs and research. While course offerings may change from semester to semester, a growing number of Dickinson College faculty have developed ways to integrate issues relating to food sustainability and the farm into their courses.

In Fall 2012, Jenn Halpin and Matt Steiman co-taught "Pleasure, Politics and Production of Food" (Environmental Sciences 300-level). The class aimed to provide students with a full-spectrum experience in what it means to be a farmer in the 21st century. Students explored theories and practices of sustainable food production plus learned about issues facing farmers and consumers, from field to farmers' market. Woven into the course were hands-on learning opportunities in food preparation and preservation, providing a well-rounded immersion into food, from "seed to plate". Students spent time learning on campus, in the fields at the College Farm and other local venues. For their final project, students had the option of writing a thesis paper or creating a video about a food-related issue of their choosing. A selection of student video projects from the class can be viewed on 

2012-2013 was filled with successful events that celebrate food, regional farmers and community. The tenth annual Local Food Dinner on March 23rd, 2013 welcomed a sold-out crowd of 250 students, faculty, farmers and community members who came together in the HUB's Social Hall to cele-

brate local agriculture! The ninth annual Harvest Fest (October 2012) welcomed approximately 300 students, staff and faculty to the farm to enjoy live bluegrass, contra dancing, on-site-pressed apple cider and handmade ice cream from Leo's in Carlisle. The Local Food Dinner and Harvest Fest events are organized by members of the Students Interested in Sustainable Agriculture (SISA) club.

In September 2012, the farm hosted the second annual award-winning "Art on the Farm" event. Featuring educational programs, performance art, live painting, sculpture, textile art, pottery turning, a locally-sourced dinner menu, and an art auction, this event raises funds for two organizations that are dedicated to preserving farm land and sustainable food systems and strengthening our community: Carlisle Arts Learning Center and Pennsylvania Association of Sustainable Agriculture.

As the 2013 growing season progresses, we will continue cultivating a farm-based synergy that welcomes new faces and feeds many people! Next time you're on campus, please stop by to check out what's happening at the farm. Smelling, hearing, seeing and tasting all that has been growing here since you graduated will get you excited about the expanding role of farms in liberal arts education and remind you of all the reasons that Dickinson is such an exciting place to study, work, explore and play! Don't hesitate to make that quick jaunt to Boiling Springs – we can't wait to see you.

Suggested Reading: [Fields of Learning: the Student Farm Movement in North America \(University Press of Kentucky, 2011\)](#).

Excerpt from a journal entry by summer 2013 student farmer, Noah Burchard (ES '16)

"Local food builds a sense of community between ourselves and the food, earth and each other."

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6



7

4 Kaitlin Soriano ('15) in the thriving strawberry patch, June 2013. 5 A bird's eye view of a variety of certified organic cherry tomatoes from the College Farm. 6 Taylor Wilmot and Megan Moody bottle-feed a lamb whose mother was healing from mastitis. 7 Taylor Wilmot ('13) and Megan Moody ('13), College Farm Apprentices, plant seedlings from a tractor attachment as Jenn Halpin drives.

New Faces in the ES Department

The 2012-13 academic year brought lots of change to the ES Department—a new chair (and then another new chair after that), a new greenhouse and entrance to the Kaufman building, a whole bunch of new students, and five new faces.

The Dickinson College Environmental Studies Department is happy to welcome Katie Tomsho (ALLARM), Debra Peters, Tyce Herman (CSE), Emily Thorpe, and Kristin Stroock.

Kristin Stroock will be joining the Dickinson College Environmental Studies Department as a new tenure-track professor, specializing in aquatic sciences. Kristin is finishing her PhD in Ecology and Environmental Science at the University of Maine in Orono where she was the Michael J. Eckardt Research Fellow and a Correll Fellow. Although Kristin spent the last five years in Maine, she is originally from Annville, Pennsylvania and is happy to be returning to central Pennsylvania. She holds a B.S. in Biology from James Madison University and an M.S. in Ecology and Environmental Science from the University of Maine. Prior to receiving her graduate degrees, Kristin worked as a biologist for the watershed restoration and protection division of the Susquehanna River Basin Commission. During her time with the Commission, she worked with local stakeholders to develop an innovative stormwater management approach for Pennsylvania communities.

Kristin's research focuses on the multiple direct and indirect effects of global environmental change on aquatic ecosystems, such as changes in climate, atmospheric pollution, and land use. She uses modern aquatic ecology and fossil records contained in lake sediments to explore issues that are critical to effectively managing freshwater resources. She has published on a range of environmental topics including aquatic food web interactions, the effects of climate change on algae in arctic lakes, and recovery from the effects of acid rain in the northeastern United States. With funding from the National Park Service, Kristin is traveling to Isle Royale National Park this summer to continue her work aimed at understanding climate-driven changes in lake habitat. Isle Royale is an island located in the northwest corner of Lake Superior and is home to isolated populations of moose and wolf that have been the topic of the longest running ecological study on predator-prey interactions in the wild.

Kristin is excited to join the Environmental Studies Department and looks forward to working with students both in and out of the classroom to explore the effects of global environmental change on aquatic systems. In her free time, Kristin enjoys camping and hiking and is excited to find new places to explore in the area. She hopes to be visiting local streams and rivers soon with Marco, her dog and trusty field companion.



Emily Thorpe joined the ES Department as its new Academic Technician. Emily joins us here in Carlisle from Glenn Dale, MD. She is a graduate of Salisbury University, where she obtained a B.A. in Environmental Studies and a B.S. in Biology. At the end of her sophomore year, she was awarded one of only thirty Greater Research Opportunity Fellowships given by the U.S. Environmental Protection Agency. This award gave her the opportunity to intern in the Habitat Effects Branch at the EPA Atlantic Ecology Division Laboratory in Narragansett, RI. Here she worked side-by-side with a team of scientists in the lab and in the field to investigate the effects of climate change on wetland ecosystems.

Emily has also studied tropical ecology and conservation in Costa Rica, as well as coral reef biology in Honduras; however, her real passion is for the Chesapeake Bay and its surrounding wetland ecosystems. During her senior year, she composed a thesis entitled, "Bigger Bang for Your Buck: Using Natural Filters in the Maryland Watershed Implementation Plan and Chesapeake Bay Restoration." Her thesis was recently awarded the John and Mary-Claire Roth Honors Thesis Prize for being the best honors thesis in her 2012 graduating class.

After graduation, Emily spent 47 days and over 11,000 miles on the road touring the country. In addition to numerous museums, she visited more than 15 national parks, forests, and monuments – places that she had studied in college, but never actually seen for herself. After the road trip, she returned to the Annapolis area as a member of the Chesapeake Conservation Corps. Through the Corps, she worked with the Maryland Department of Natural Resources and the Chesapeake Bay National Estuarine Research Reserve on environmental education and stewardship projects. While with the reserve, Emily was awarded a Chesapeake Bay Trust grant, giving her the opportunity to lead a team of Corps volunteers in the construction of a Nature Play Space at Jug Bay Wetlands Sanctuary.

In her free time, Emily enjoys camping, hiking, and hunting with her dog, Bel Air, as well as skiing and kayaking. She is looking forward to exploring new places to hike and kayak, learning to fly-fish, volunteering at the farm, and of course, joining Dickinson students and faculty on their awesome field trips!



New Faces in the ES Department



Deb Peters joined us in January as the new Academic Department Coordinator. Deb joined us at the beginning of the 2013 Spring Semester after 15 years in the CASE (Conferences & Special Events) office on campus. Her first semester in the ES department has brought many challenges and opportunities to learn about academia. She brings with her the experience and the knowledge of process and procedures of the campus and is glad to be part of the ES team.

Born and raised in the Carlisle area Deb makes her home in Mt. Holly Springs where she lives with her husband of 33 years. They enjoy spending their time with family and their two grandsons. In her free time you can find Deb enjoying the great outdoors, camping, beaching, riding her motorcycle or practicing yoga.

Katie Tomsho joined ALLARM as a full time assistant director in May of 2012. As a student, Katie worked with the organization in various capacities for three years. During her sophomore year, ALLARM became involved with Marcellus Shale development monitoring. Katie began working with Marcellus Shale monitoring program at an early stage, and continued to work closely with the issue throughout her time at Dickinson. She has participated in and presented at numerous workshops and conferences on this topic throughout the state. Her interactions with concerned citizens at these workshops sculpted the path she took in college, and ultimately led her to create a documentary to capture the complexity of the community impacts of natural gas drilling in Pennsylvania.

It was through her time at ALLARM and the creation of this film that Katie realized her love of working with community groups and empowering them with knowledge. This love led her to apply to become the new Assistant Director of Outreach for ALLARM. Upon graduating, Katie took on this new role. She is tasked with overseeing ALLARM's shale gas monitoring program in Pennsylvania. She works with volunteers, providing technical assistance, helping with data management and interpretation, and training new volunteers. Three years into this program, she is excited to be working with the issue full time and continuing to strengthen the program throughout the state. Most, she looks forward to continuing to work with impacted communities throughout the state, and connecting with volunteers.



Tyce Herrman joined the Center for Sustainability Education as its new Projects Coordinator. He is a graduate of Stetson University, where he obtained a B.S. in Environmental Science and a B.A. in Philosophy.



Tyce has engaged in a variety of research and professional activities, spanning protein folding mechanics (he studied molecular biology in the not too distant past), climate change and energy policy, campus sustainability in higher education, and the phenomenology of ecofeminism. He has presented his research at the National Conference for Undergraduate Research, the Florida Academy of Sciences Conference and the Association of Environmental Studies and Sciences Conference.

As an undergraduate, Tyce sought to blur the boundaries of the classroom and of traditional disciplines. His community-based, interdisciplinary studies and research were recognized with the Algernon Sydney Sullivan Award, Stetson's Rachel Carson Environmental Science Award, and Outstanding Senior in both Environmental Science and Philosophy. He brings this model of engaged education to CSE projects like the Biodiesel Shop and The Handlebar Bicycle Co-op, creating "Living Laboratories" for students.

Tyce spent last summer cycling across the United States with the organization Bike & Build, a non-profit that raises money for affordable housing groups like Habitat for Humanity. Tyce's ride traversed the Northern U.S. from New Hampshire to Vancouver, spanning 3,700 miles – he can't wait to do another cycling tour!

Tyce likes to tinker on his bicycle (and other people's if they feel adventurous), play volleyball, and listen to "Wait, Wait Don't Tell Me" podcasts.

Alumni Updates

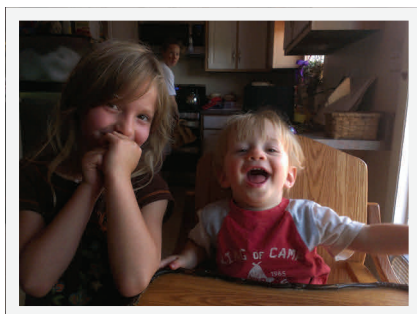
Class of 1993

Matthew Kloiber



Completed my J.D. at the Dickinson School of Law of PSU in 1999. Earned my LL.M. in Trial Advocacy from Temple Law School in 2012. Spent several years clerking at the federal and state appellate court levels where I had the opportunity to work on some environmental and zoning law cases. Currently practicing law in Pennsylvania. Married with four children ranging in age from 8 to 1.

Class of 1994



Juliane Bowman Brown

In June of 2012, after 14 years with the USGS in various capacities (student,

physical science technician, hydrologic technician, and hydrologist), I resigned in order to stay home with my newborn son. It was a difficult decision because I had thought I would retire with the agency. However, after many frustrations and disappointments, I was in desperate need of a change. Simultaneously, we were looking to scale down, and focus on a more sustainable lifestyle. We now have a smaller home much closer to my husband's work and my daughter's school, a fantastic garden and greenhouse, and five adolescent chickens. We're also in the process of building an indoor aquaponics system to grow food (and fish) all year round. I am considering a variety of options for my future, and once my son is in preschool I will pursue additional professional work. Most likely I will focus on sustainability, including, possibly water reuse.

Kathleen Lessard

Hello, hello! Since graduating from Dickinson I have put my degree to good use with time at the Audubon Society in Chevy Chase, MD, a stint in AmeriCorps with Neighborhood Green Corps in the Bronx, a season in the huts of the Appalachian Mountain Club of New Hampshire and then time at a land trust in New Jersey. After that I headed off to graduate school for a degree in landscape architecture. Upon graduation I spent time in Boston helping to design playgrounds and public spaces, and for the past seven years I have been working as a landscape architect in New York City for the Central Park Conservancy --- a not-for-profit that runs Central Park. From the mountains to the concrete canyons it has been a

great ride! Hope this note finds everyone well!

All the best, Kathleen.

Class of 1998

Laura Hersher Akins

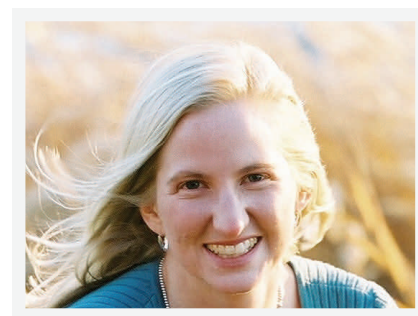
I just celebrated my 15 year anniversary with Booz Allen Hamilton, working as a consultant with the Federal Government. I have two children, Kyle who's 5 years old and Jonah who's 2 years old.

Carissa Lord



Carissa is working as the Bi-State Stormwater Coordinator for the Massachusetts Department of Environmental Protection and Rhode Island Department of Environmental Management.

Elizabeth Martin Perera



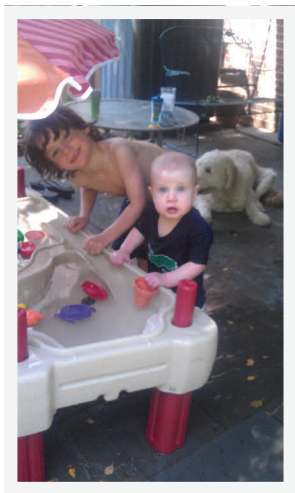
I am still working hard to protect the environmental and combat climate

Alumni Updates

disruption on Capital Hill. I am also working on adaptation and building resilience to climate change impacts. I still think about all I learned from working for ALLARM and learning about aquatic habitats and stormwater management in my work on climate change impacts. I now have a masters in environmental management and public health. I love getting my 2 and 4 year old outside and spending time on the water! We'd love to reconnect with all of you if you're in the DC area and I hope to visit Carlisle soon!

Class of 1999

Michelle Kenney Pappas



We welcomed our second son, Brayden Michael Pappas on May 7, 2012. Life has been busy with two, but the whole family loves the outdoors and trips to the Baltimore Aquarium.

Class of 2002

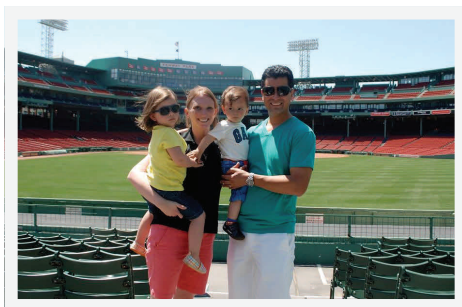
Addison Helmke

I am a founding teacher of a small private high school in Alexandria, VA. Af-

ter receiving my MS in Environmental Science with a focus in Environmental Education from Antioch University New England, my husband and I bought a house in Alexandria.

Class of 2002

Heather Friedmann



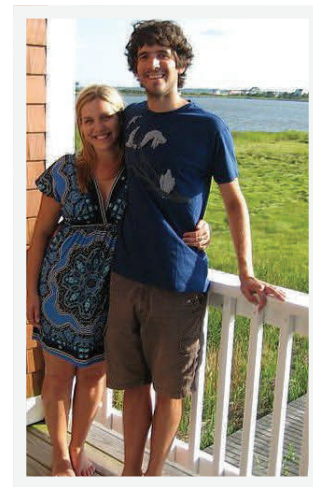
Hope everyone is doing well! I'm in Boston, and have been working for the Massachusetts House of Representatives for the past 7.5 years. I currently am the Research Director for the Joint Committee on Transportation, and manage all the legislation relative to rail, MBTA, highways, aviation, motor vehicle operations and safety. My husband and I have two sweet, wonderful kids - Gabriella is 3 and Noah is 1. Within the next year, I hope to harness my entrepreneurial spirit and create a line of eco-friendly, Boston-themed nursery decor items, so stay tuned...

Class of 2004

Emily Rhode

After teaching high school environmental and earth science for 5 years in Maryland, my fiancé and I moved to Belize

to work with Mary Open Doors, an NGO that provides services for survivors of domestic violence. We worked on fundraising and grant writing efforts and had a wonderful experience getting to know the community of San Ignacio and the beautiful country of Belize. In the summer of 2012, we welcomed nephew Lucas and niece Eden Mae (what a coincidence, Candie!) and in August of 2012, we moved to Raleigh, North Carolina. I accepted a job with the City of Durham Stormwater Services Division where I am the Pollution Prevention Coordinator, working with local businesses and municipal employees to educate them about prevention and recognition of stormwater pollution.

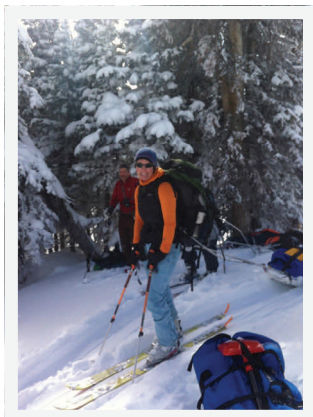


Brian and I will be married in the Outer Banks of North Carolina in September, and will be in the Raleigh/Durham area for at least the next 3 years as Brian pursues his Ph.D. in Materials Science Engineering. I hope to see some of you at the (10 year!) reunion next summer!

Alumni Updates

Class of 2006

Amanda Bridenhagen



Hello ES crew! I live in Boulder with my husband Eli and absolutely love living in Colorado. I completed the MBA program at CU in May 2012, where I focused on Sustainability and Marketing. After school, I worked for a natural products startup and then ultimately ended up at a social data provider called Gnip (www.gnip.com). Although I'm not working in an environmental policy position anymore, I find plenty of time to engage in environmental issues and social venture endeavors through groups like TNC, Colorado Water Trust, and the Unreasonable Institute. I spend as much time as possible in the mountains, skiing, hiking, riding horses, and sometimes pretending to fly-fish. This past February, I spent 10 days winter camping (in a snow cave) and back-country skiing on the Idaho side of the Tetons (see pic) with the National Outdoor Leadership School (NOLS). At the wedding of Julia Hyman Lazar '06, I spent a lively evening with Scotty Morrello '06, Meghan Klasic '06, and Pieter Van Remoortere '06! If you're ever in Colorado, please give a shout!

Rebecca Walker

I am excited to announce that I'll be relocating closer to many of my fellow alumni at the end of June 2013. I'll be attending SUNY Environmental Science and Forestry School in Syracuse, NY to earn an MS degree in Environmental Communication and Participatory Processes. I'm coupling that degree with a Master's of Public Administration that I'll earn from Syracuse University in 2014.

Class of 2008

Lisa Biddle



I've spent the past three years pursuing my masters degree in landscape architecture at the University of Georgia, graduating this May. My thesis research focused on sea level rise on the Georgia Coast and green infrastructure as a design adaptation strategy. While in grad school I had the opportunity to travel all over the southern US and to Costa Rica and New Zealand visiting famous landscapes and doing community design work along the way. One studio project this past fall took our class to Biloxi, MS which was very reminiscent of my amazing 2007 Luce trip experience at Dickinson (although sad-

ly minus Red's juke joint). I'm now job searching and looking to start my career as a landscape architect designing sustainable and beautiful urban spaces.

Danielle Cioce

Danielle is living in Houston and working on a variety of water quality projects for Harris County. She misses Tea Cooler.

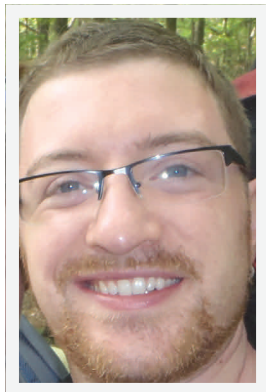
Karen Kirner de Chazelles



After spending a year working at the Dickinson Center in Toulouse, France and teaching English to elementary kids, I moved to Strasbourg, France. I went back to school for a master's degree in urban planning and sustainability and am currently looking for a job. I'm enjoying discovering the Strasbourg area: the Vosges mountains remind me of the Appalachians, the biker-friendly attitude allows me to bike everywhere I go and I can travel internationally by biking across a bridge to Germany. In addition to all of my discoveries in Strasbourg, I also spent a bit of time preparing for my wedding this past autumn with a ceremony in France in October and in the U.S. in November.

Alumni Updates

Jensen Gelfond



What an exciting last year it's been for me! To give a little background, after graduating from Dickinson and going on the Obama campaign trail, I ended up in Asheville, NC working for Seven-Star, the event planners that put on the Green Festivals (the largest green consumer event in the U.S., held in large cities across the U.S. including DC). For 3 years I held several positions, from Assistant to the President to Sponsorship Sales and finally head IT Guy. Spring boarding off my success in IT and going back to something I've been passionate about since childhood, in November 2012 I launched my own company: Asheville Digital Lifestyle. I now help individuals and businesses (including Seven-Star) with their technology such as Macs, PCs and smartphones, with an emphasis on hands-on teaching and personal productivity. I love it! As for my personal life, Tory is my beautiful and talented girlfriend of 4 years (she's a paralegal considering law school and perhaps environmental law!). During pilgrimages between my home state of NJ and Asheville we made sure to stop by and say hi to Professor Heiman. Tory is still dating me since then, so he didn't scare her off despite his best intentions. If

anyone comes to Asheville, please let me know and we will get a beer at one of Asheville's 12 breweries!

Ashley Whiting

I recently begun working for the City of Wilmington, Delaware as a Water Quality Specialist. It is my responsibility to ensure the drinking water we provide meets all state and federal regulations.

Oddenino. Also present but not pictured: Kalyn Campbell.



Class of 2009

Kate Consroe

I am living and working in Arlington, VA. I work as an environmental analyst at Eastern Research Group, Inc. (ERG), an environmental consulting firm. I help EPA monitor their energy and water consumption, support their recycling program, and compile their greenhouse gas emissions inventory. This year I am also helping plan the International Institute for Sustainable Laboratories (I2SL) Annual Conference. When not working, I like to bike on the many trails in the DC area, and I love to cook and bake as much as possible!

Class of 2011

Cara Applestein



I graduated with an M.S. in Conservation Biology from University of Maryland, College Park in December 2012. After graduating, I took a trip to Norway by myself to cross-country ski and see the arctic. I am currently working as Conservation and Land Management Intern through a Chicago Botanic Garden program. I am stationed with the BLM in Vale, Oregon. I have recently begun the PhD search and hope to enroll in a Forest Ecology or Plant Conservation program within the next year or two.

Class of 2010

Maunette Watson Makowski

"Dickinson Alumni get together at Lake Champlain! Vermont, June 2013." Alumni shown in the picture (from left to right): Philip Rothrock, Maunette Makowski, Spring Beckhorn, Vinca Krajewski, Gwen Dunnington, Doni Hoffman, Emily Lawrence, and Kerri

Alumni Updates

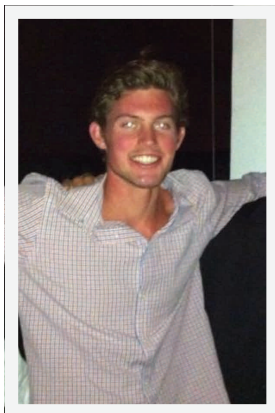
Class of 2012

Angelo Lan

I am in the summer break between my first and second year in graduate school. I am currently working at General Electric's Corporate Environmental Program supporting their sustainability program. I have been primarily working on GE's greenhouse gas inventory and biodiversity initiatives.

Class of 2013

Brian Sandrib



I recently acquired a job as an inside sales rep for EDR in Milford CT. I am responsible for marketing EDR's data services to a variety of customers (mostly environmental professionals) throughout the United States.

ALUMNI NEWS

Stay informed on the latest Alumni news and events at [Dickinson Alumni](#), and be sure to visit the [Environmental Studies Alumni](#) page!

Send us your update to appear in the next newsletter by filling out our [Alumni Survey](#)! You can update your contact information, include a write-up for the newsletter, and even attach a picture! The next time the newsletter comes out, your fellow ES Dickinsonians will know what you've been up to!

JOB HUNTING OR SEEKING A CAREER CHANGE?

Occasionally, our department receives emails from organizations seeking to fill positions that would be well-suited for Alumni of our Environmental Studies/Science programs. We would welcome the opportunity to pass this information along to you. If you are interested in receiving these announcements, please email Emily Thorpe at thorpee@dickinson.edu. You should send your "sign up" request from your desired email account. Please include your name, year of graduation and "Sign Me Up" in the subject line.

WE WANT YOU!

- ◆ Has your Dickinson education landed you the perfect career?
- ◆ Are you excited to tell people about projects you are currently working on?
- ◆ Are you involved in cutting edge environmental work?

If you answered "yes" to any of these questions, the ES department would love to have you back to campus to speak with our current majors.

If you would like to share your wisdom, knowledge and experiences with our students please contact Emily Thorpe at thorpee@dickinson.edu.