



Greetings from the Director

"Are you really the new ES Director?" asked one of my ES advisees in early September, with more than small dose of disbelief. I had asked myself the same question. Yes, I have been a member of ES for 10 years, taught the capstone class 6 times, and even served for one year as the Program Director. However, I also am starting a new project on state immigration policy making and love downhill skiing in winter, fishing in the spring and summer, and hiking in the fall, and being the Director can only get in the way of all those things. However, it was too good an opportunity to pass up.

As a public policy wonk, I find the complexity of environmental problems particularly fascinating to study. How does one balance the competing interests of current and future generations, of human versus ecological values, and of haves versus have nots? Can we make effective environmental policy in an archaic 18th century political system with a seemingly endless number of competing interests? How does one balance democratic values with the scientific complexities of many environmental issues? How do economic, ecological, historical, biological, humanistic, chemistry, sociological, and geological factors affect the policy process? I get excited just thinking about it.

I am also very excited to continue working closely with our ES majors. The interdisciplinary and applied nature of ES attracts ambitious students who want to change the world. No other major has as profound an effect on the campus as ES. Just see Margie Pfeffer's involvement in the new Skidmore solar array, Emily Durante's efforts with the Skidmore bike-share program, and Eliza Hollister and others' work on the Skidmore Community Garden. However, ES majors are not content to stay in the Skidmore bubble. ES majors have worked with the City government to

enact a Complete Streets and anti-idling policies. They even helped get the previous Republican mayor to sign the US Mayors Climate Protection Agreement to reduce carbon emissions. And of course, one can always find a healthy number of our majors and alums at a Power Shift, Tar Sands Action, or People's Climate March. However, the greatest pleasure, for me, is to see a student turn the intellectual spark from their ES capstone project into their lifelong work in planning, science, conservation, medicine, education, public policy, farming, or any number of other avenues.

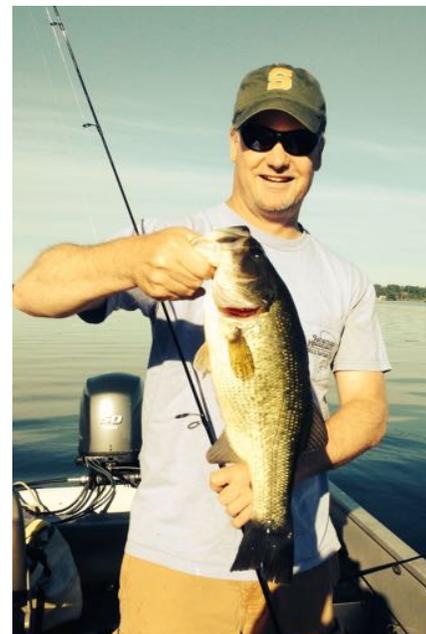
As appealing as the students are, so too are the ES faculty. Nurcan, A.J., Anne, Josh, and Cathy's commitment to their students and to the program is inspiring. They are always planning amazing field trips to the Wastewater Treatment Plant, the Kayaderosseras, the Radix Center, a local farm, or even some crazy Earth spaceship. Their research on sea turtles, sustainable surfboards, cactus-tending ants, nutrient-uptake dynamics, alternative food systems, and seed banks is awesome, and I always feel smarter just talking to them. I also look forward to working with the 40+ ES-affiliated faculty from 12 departments across the college.

As to the future of the ES program, environmental challenges are only growing and the ES program needs to step up our game to meet these challenges. First, I think it may be time to revisit the ES Curriculum. Does it cover the right areas and provide a sufficient skill set for our majors? Do we have sufficient resources to deliver the curriculum? Are there project-based classes to add where students can wrestle with the hard job of making sustainability work and incorporate interdisciplinary and applied learning?

Second, how can we increase the rigor and challenge of the program? It is a competitive world out there, and

we always need to be looking at how to increase our students' analytical and writing skills. Are there new potential research experiences, study abroad programs, or internships that could give our students more opportunities for mind-in-hand learning?

Third, inspiring speakers, movies, and events are one of the best things about being an ES major. I want to keep bringing in inspiring policy entrepreneurs like our ES keynote speaker, Auden Schendler, the VP of Sustainability for Aspen Skiing Company (calling Jackson Hole anyone?). However, I think our students also need to hear more opposing and conflicting perspectives that challenge their preconceived notions. The open forum with Anglo-American mining executive Cynthia Carroll that took place last year is the sort of intellectually challenging event we need more of. Those are just some ideas, but I am sure you have even better ones. My office door in Ladd 316 is always open and I look forward to working with all of you.



Bob Turner, Director of the Environmental Studies Program

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Faculty Profile: Bob Turner (Government)

Longtime government professor and newly chosen Director of the Environmental Studies Program, Bob Turner, has big plans for the program. While a government professor may initially seem like a surprising candidate for the position, Bob's extensive personal and professional background in the environmental field have equipped him with a unique set of skills and a perspective that will stimulate and strengthen the department. Bob has been involved with Environmental Studies for over ten years, and worked as the director for one year previously. He is strongly committed to building the program and ready to invest the time and energy needed to bring his ideas to fruition.

Bob's connection to Environmental Studies traces back to his political career on Capitol Hill, where he dealt hands-on with the kinds of issues and discussions he now brings into the classroom. In fact, the first big bill he worked on was the 1990 amendments to the Clean Air Act. He spent time talking to various lobbyists on issues ranging from pollution and wildlife to organic food. On a more personal level, Bob tries to spend as much of his time in the outdoors as possible, whether it is skiing in the winter, fishing and canoeing in the summer, or hiking and camping in the spring.

Environmental Studies is poised to become the fifth biggest major at Skidmore. This year a record number of incoming students declared ES a potential major. One of Bob's main priorities is to ensure that the department has enough faculty and classes to accommodate the increased demand. Second, he hopes to revisit the curriculum, enhance the academic and intellectual rigor of the program, and ensure that it continues to provide students with the appropriate knowledge and skills. Bob acknowledges that the Environmental Studies Program has always had a prevailing sense of collegiality and camaraderie among faculty and students that he hopes to enhance and build upon. Finally, he wants to keep bringing in intellectually diverse and challenging speakers. He adamantly feels that exposing students to speakers with differing and opposing views is important to sparking intellectual thought, conversation, and fostering new ideas. Interdisciplinary



learning is best promoted by spending time with people who see the world differently from you, and who challenge your perspectives and offer competing voices on major issues.

Bob stresses pragmatism and the importance of learning valuable problem-solving skills as a part of environmental education. He wants students to learn how to approach a problem from all angles, meet the needs of potential stakeholders, and appreciate the complexity of achieving environmental change. Majors should accumulate a mix of environmental science, social science, public policy, artistics and humanities skills to identify, frame and sell those solutions to a group of stakeholders. Bob's main priority for the program is to provide students with a diverse, intellectual toolkit and a host of pragmatic, problem solving experiences to ultimately prepare them for whatever the future offers.

- Michaela Kerxhali-Kleinfield

Faculty Highlights

Visiting Assistant Professor **A.J. Schneller** has a new research endeavor in Costa Rica, studying "voluntourism". Voluntourism is best understood as travel (abroad or domestic) coupled with a healthy time commitment to volunteering for social and/or environmental causes. In response to the lack of evaluation of participant, environmental, and community outcomes of voluntourism programs, Dr. Schneller and Skidmore student Sarah Coburn '16 will work with Global Leadership Adventures (GLA), an organization that organizes voluntourism trips, to evaluate GLA's Protecting the Pacific program and their community partner in Costa Rica, Bodhi Surf and Yoga School. They will conduct interviews and surveys of 100 US teenage voluntourists, a sampling of their parents, and individuals living in the communities being served at their study site in Uvita, Costa Rica. The high school participants will practice yoga, snorkel, surf, hike, kayak, cook, whale watch, conduct community and environmental service, and participate in informal environmental learning about the local community and the amazing environment of

the Ballena National Park (Whale Bay NP). Sara will analyze the preliminary data for her independent study at Skidmore, and the team plans to publish their findings in a peer-reviewed journal.



This past summer while Dr. Schneller was in Costa Rica, he ended up saving a sloth that was trying to cross the road. The photo went viral and ended up getting over 1.1 million hits!

Faculty Highlights (continued)

Assistant Professor **Nurcan Atalan-Helicke** published a paper titled “Learning and Promoting Urban Sustainability in Place: Service Learning in an Undergraduate Environmental Studies Curriculum” in the December issue of *Journal of Environmental Studies and Sciences*. Her paper, “The Halal Paradox: Negotiating identity, religious values, and genetically-engineering food in Turkey,” which she presented in June at the annual meeting of Agriculture, Food, and Human Values in Burlington VT, was accepted for publication in *Agriculture and Human Values*. She presented her Faculty Student Summer Research project “Seed saving and agricultural biodiversity conservation: Food system

resilience in the US and beyond” at the Association of Environmental Studies and Sciences meeting in June.

Associate Professor **Eric Morser** contributed a chapter to a recently published book. He wrote “Flames in the West: American Expansion, Federal Indian Policy, and the Transformation of Indigenous Lives in the Age of Grant” in *A Companion to the Reconstruction Presidents, 1865-81*, ed. Edward O. Frantz (Hoboken, New Jersey: Wiley-Blackwell, 2014). He was also a commentator at a Researching New York conference held at the University at Albany last November, responding to “Opposing Loyalties: Forging Political Identities.”

Sustainability Initiatives

Sustainability continues to play a big part in Skidmore’s strategic planning. So many new sustainability initiatives are underway on Skidmore’s campus, the Fall 2014 issue of Skidmore’s Scope magazine made campus sustainability its cover story.

Below are highlights of some of the latest enterprises to make Skidmore’s campus more sustainable. Note that many of these projects had their roots in ES capstone projects, independent studies, internships, honors theses, and summer research. ES students provided leadership on everything from composting to the garden to greenhouse gas inventories, and even our alumni have helped with various projects. All of these projects and many others have helped Skidmore reduce its GHG emissions by 48% since 2000, and we are proud of the role that ES has played in these efforts.

SUSTAINABLE FOOD

- This past fall, the new Skidmore Community Garden opened on Wiecking Hall lawn. Complete with a new tool shed and fence, the 6,500 square foot garden space more than triples the size of the old garden on North Broadway. Its prominent location also encourages more student participation; garden manager Eliza Hollister ’15 said more than 4 times as many students have been participating in work parties at the new garden site. The increased size and extra hands are paying off: the garden sold over 550 pounds of crops to Dining Services this past growing season, and next season’s yield should be even larger.



- Skidmore’s compost program recently expanded to cover Sussman Village student apartments. Plans are in the works for a large-scale composting effort to compost manure from the stables and grounds waste, which will then be used on campus to reduce the need to purchase fertilizers for landscaping.

SUSTAINABLE TRANSPORTATION

- The campus bike-share program, Bikemore, continues to grow. Bikemore allows any member of the Skidmore community to borrow a bicycle from self-serve bike racks. In past years, this program used a variety of refurbished bikes that often needed repairs, but a \$20,000 grant from the Cargill Foundation improved the program, providing 20 new chain-free bikes and an electronic locking bike rack. Since the new bikes arrived last June, over 200 people have registered for this program, for a total of over 600 rides. Emily Durante ‘15 was instrumental in getting this program going, and currently manages the program to increase green transportation options for students.
- Skidmore recently installed a free recharging station for electric cars with plug-in batteries. Taking advantage of a promotion offered by National Grid power company, a free 2-car charging kiosk is now available behind Palamountain Hall.

SUSTAINABLE ENERGY

- Skidmore’s 8-acre solar array, located along Denton Road behind the baseball fields, went online this past October and is currently generating 2.1 million kilowatt hours a year, supplying 12% of Skidmore’s electricity needs. A year in development, the facility is one of the largest solar arrays in New York State.

At the October ribbon-cutting ceremony, President Glotzbach and Congressman Paul Tonko spoke to a crowd of over 150, but ES senior Margie Pfeffer (second from right) and Associate Professor Karen Kellogg stole the show with their comments on climate change and sustainability.



- This past summer, thermal solar panels were installed on the roofs of several residence halls and the Van Lennep Stables. Ten thermal-solar panels on each roof will provide some of the hot water in winter and all in summer (30% total) for each of these buildings.
- Skidmore is going to begin generating 18% of its electricity demand from a refurbished hydropower plant in Columbia County, about 60 miles south of campus. The State Legislature recently began allowing “remote net metering”, where renewable energy can be generated in one area but credited to a producer in another location. In exchange, Skidmore will refurbish the dam, with renovations including an on-site classroom that can be used by interested faculty.

Study Abroad

From fall 2013 through summer 2014, over 90% of ES majors studied abroad or spent time off campus in a domestic program. This far surpassed the Skidmore average of 68% of students who go abroad, making study abroad a major component of an ES education at Skidmore.

ES majors went to 18 different countries last year on various programs. The most popular destination was New Zealand, with 6 students, followed by Denmark's Danish Institute for Study Abroad, with 3 students. Other countries included Austria, Costa Rica, Germany, India, Mongolia, Panama, Spain, Tanzania, Thailand, and Turks and Caicos.

Spring is the more popular semester to study off campus, with over half of ES students going abroad then. About a third go abroad during the fall, and a smaller number go abroad for a full year. This past summer, 3 students opted for a shorter experience than a typical semester-long program, and instead spend 3 weeks working with rural communities in Ghana through Saha Global. One student spent a semester at Woods Hole MA in their Semester of Environmental Science program.

Wherever they end up, Skidmore ES students have fun immersing themselves in a different culture and learning from a new perspective.



ES students who studied abroad last year were all invited to a welcome-back picnic this past fall. First- and second-year students interested in finding out about ES-approved programs were also invited to come and hear directly about the various programs from students who had experienced them.



Sarah Hoenig '15 (left) and Laura Mindlin '15 meet up in Stockholm Sweden.



Jewels O'Brien '15 milks a cow in Mongolia with her host family.



Rebecca Fennel '15 hikes along the Rio Manzanares outside of Madrid Spain..



Jared Herman '15 traveled through various villages in northern Thailand.



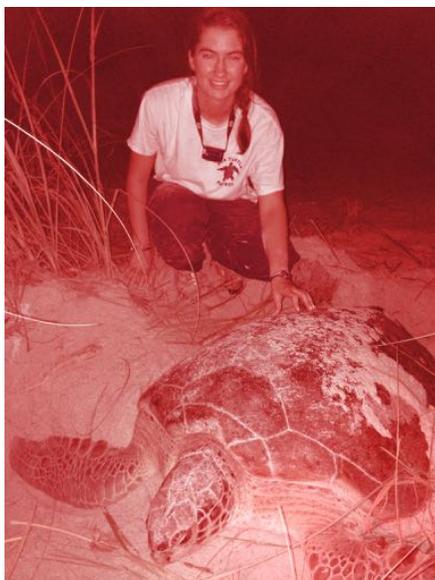
Abby Outterson '16 (left) and Alyssa Hagerbrant '16 (center) pose with a friend in a carrot field in Cerro Punta, Panama.



Christine Munisteri '16 (left) and Caroline Hobbs '16 (right) conduct research on shallow coral reef health in the Bocas del Toro archipelago and aspirate bugs in Panama's lowland deciduous rainforest.



Student Awards and Accomplishments



Anna Gubbins, ESS '14, pictured in this red-light nighttime photograph with a green turtle, was awarded Skidmore's SEE-Beyond grant to fund her internship at the Mote Marine Lab.

I spent my summer working with the sea turtle conservation and research program at Mote Marine Lab in Sarasota Florida, one of two nighttime tagging interns who monitored a six-mile stretch of beach for nesting loggerhead and green turtles. The sea turtle tagging program is focused on gaining information about turtle nesting habits as well as larger scale data on population size and life history characteristics. I learned how conservation could be paired with fieldwork in order to successfully understand and protect a species. Both the field research and monitoring were important to collectively protect the threatened loggerhead and endangered green turtles that nest on the Florida beaches.

I also worked closely with Dr. Justin Perrault, an immunology research scientist at Mote who is looking at toxin levels in turtles. We collected and analyzed blood samples, finding that many turtles had toxins in their system associated with a red tide event in the area over two years ago. Being involved in this research allowed me to experience hands on science and apply what I have learned at Skidmore to a real-life situation. The data collected about the turtles nesting, hatching, migration, and population dynamics supported sea turtle conservation in this area.

A vital part of conservation is forming a connection and providing educational opportunities to people. I realized how important it is to connect scientific research and conservation efforts with education. It was rewarding to see people change their behaviors after they were given more information. One noticeable change in behavior we saw was that people would switch from using white lights, which can be harmful to turtles, to red lights once they were informed of the negative impacts.

One of the careers that I'm thinking of pursuing is a career in wildlife conservation or research. This internship has provided me with great experience working both as a field researcher and as a part of a conservation group. Tagging sea turtles was an invaluable experience that has intensified my love of the natural world and highlighted the role that scientists and researchers can play in species protection. I am so grateful to have been given the opportunity to learn in this hands-on program.

- Anna Gubbins '15

Tsering Choden '17, a student in Skidmore Scholars in Science and Math (S3M), participated in the Alternative Seed Systems and Food Resilience in the US project this past summer. The funding was provided by S3M.

Nahid Paiman '15 spent 5 weeks this summer doing faculty-student summer research with Assistant Professor Nurcan Atalan-Helicke. Her project was entitled Afghan Women in Leadership Positions: Activism and Local Economic Development.

Lauren Bosche '15 and **Helen Alemayehu Mebrate '16** spent 8 weeks this summer working with Assistant Professor Nurcan Atalan-Helicke on a faculty-student summer research project focused on alternative seed systems and food resilience in the US. They received an additional \$750 award for

conference travel, and attended both the Food Systems Summit at the University of Vermont and the annual meeting of Agriculture, Food, and Human Values.



Helen Alemayehu Mebrate (center) and Lauren Bosche (right) were joined by ES Alum Sarah Arndt '14 at the Food Systems Summit.

Jenna Frank (third from right) stands with several women of the YEMA-MA coop and their children on their land in Chuburna Puerto, Mexico.

Jenna Frank '15 wrote a successful 3-year, \$60,000 grant for YEMA-YA, a women's organic farming collective in Mexico. Jenna's history with YEMA-YA began during a leave of absence in spring 2014, when she met with a group of Mayan women in Chuburna Puerto, Mexico to discuss the creation of a women's collective to support an educational organic farm project. She worked with the women during February 2014 to clear a portion of the land and conduct a project-planning meeting. With this preliminary information, she contacted potential donors who might be interested in supporting the project. Jenna continued her work with this group throughout the summer of 2014 with an internship award from Skidmore's Student Government Association. As part of her internship, she worked from the U.S. to help the women form a legally recognized Mexican non-profit and acquire a 20-year lease of ejidos land. To secure financial support for YEMA-YA, Jenna established a relationship with a representative of the Blossom Fund, a private 501(c)(3) foundation that supports the grassroots efforts of women in Latin America. Throughout the remainder of the summer, she collaborated with YEMA-YA to create a 3-year proposal. She incorporated this proposal into a grant application for the Blossom Fund, and this past December, the Blossom Fund agreed to support the project for 3 years at \$20,000 per year.



Summer Internship Award Winners

This past summer, 8 ES students successfully competed for funding from various groups and programs on campus to undertake summer internships that focused on a range of environmental issues. In addition to Anna Gubbins and Jenna Frank (featured on the previous page), 2 students got funding from the ES Program and 4 others were awarded funding from either the Student Government Association or directly from Skidmore. The goal for each student was to connect academic interests to real-world experience, and students worked from Saratoga to San Francisco, covering urban planning and land conservation, wilderness protection, food security, environmental health, and sustainability.

Emily Cheung '17, ESS major, funded by the Student Government Association's Responsible Citizenship Internship Award (RCIA)

Emily interned at the Student Conservation Association with the Forest Service, working on a trail crew in the Frank Church-River of No Return, a protected wilderness area in Iowa. She was responsible for creating a network of approximately 200 miles of trail passable to horses and mules, the primary means of transportation in the backcountry. Over the course of her internship, Emily practiced and mastered the skills it took to properly clear a trail. Emily's experience cultivated teamwork and communication skills, living in the remote wilderness with a small team and no electricity or mechanized instruments. She also was able to meet with wilderness rangers, smokejumpers, fire lookouts and field biologist, broadening her perspectives on wilderness management.



Emily Durante '15, ESC major, funded by RCIA

Emily interned for the City of Saratoga Planning and Economic Department. She dedicated her time mostly as Project Manager for the pilot bike share program she worked to implement in Saratoga Springs between July and August. She collaborated with the Capital District Transportation Committee to receive funding for the project, the bike share company Buffalo BikeShare, other cities participating in the project, as well as various departments within Saratoga Springs government to bring the project to fruition. She also met with various local stakeholders, including members from the Chamber of Commerce, the Visitor's Centers, the Greenbelt Trail Committee, hotel and tourism managers, as well as managers of the Saratoga Spa State

Park to effectively combine experiences and pool resources. Emily gained valuable experience fostering cooperation and creating networks between diverse organizations in order to establish a common goal and make an idea a reality.



Rebecca Fennel '15, ESC major, funded by the ES Summer Internship Award

Rebecca interned at Food Gatherers in Ann Arbor, Michigan, a nonprofit food bank that rescues food from local grocery stores and large businesses, diverting millions of pounds of food from landfills to people in need. Rebecca helped sort through food items to make sure that the food being distributed to food-insecure community members was good quality. She spent much of her time directing volunteers around the warehouse, giving tours of the facility, and providing instructions for how to sort through the rescued food. She also helped reorganize the "shoppers pantry" – a room where agency representatives could get food to bring back to their organizations – to make healthy produce more accessible. One of Rebecca's most rewarding projects at Food Gatherers was the organization and implementation of a produce box program, which provided hundreds of needy families with fresh summer fruits and vegetables. Rebecca's internship taught her not only about feeding the food-insecure, but also about how to address the steep problem of food waste, how nonprofits are managed and evaluated, how to interface with volunteers and clients, how to create "best practices" in a workplace, and how to maximize efficiency by focusing on strong organization.



Sarah Hoenig '15, ESC major, funded by the Skidmore Summer Funded Internship Awards Program (SSFIAP)

This summer Sarah interned at the Citizens' Environmental Coalition (CEC) in Albany, NY, a non-profit organization that focuses on environmental health issues in the New York Area. Their slogan is "Bringing the grassroots to the statehouse to advocate for safe and healthy communities." At CEC, Sarah wrote articles for the quarterly newsletter, contacted New York Senators urging them to pass the Children's Safe Product Act, and investigated pollution problems, state policies, and programs. Sarah was able to compile her experience in a research paper focused on hydraulic fracturing and birth defects in the United States.



2014 ES Summer Internship Awards (continued)

Olivia McKee '16, ESC major, funded by the ES Summer Internship Award

This past summer Olivia interned with Saratoga PLAN (Preserving Land And Nature) on several community engagement projects. PLAN is a local land trust that has worked to preserve over 3,380 acres of open space in Saratoga County in order to preserve the rural character, natural habitats, and scenic beauty of the area for future generations. Olivia's work included website design, landscape photography, and interviewing/writing biographies of farmers and landowners. The experience offered Olivia the opportunity to explore and give back to Saratoga County, while learning about how land conservation functions in preserving the natural spaces she has come to know and love.



Maddie Welsch '17, ES minor, funded by RCIA

Maddie spent the summer in the Bay Area of CA working at Teens Turning Green, a large-scale student-led movement focused on education and advocacy of sustainability practices in local communities. Teens Turning Green leads an array of diverse projects that primarily seek to engage youth in the transition from conventional to conscious living. Maddie's days consisted of a variety of tasks; she wrote the content for Project Green Challenge, photographed an e-cookbook, helped manage social media pages, and illustrated media for the website. In addition to becoming more familiar with the ins and outs of the non-profit world, she also integrated herself into a extremely large network of powerful, passionate change makers, who share a common vision of a healthy planet.



Alumni Spotlight

Gordon MacPherson '12 graduated from Skidmore as an ESS major, and has been working at Ecovative Design ever since. Ecovative is an R&D / manufacturing startup near Troy, NY that makes sustainable materials from agricultural wastes and fungal mycelium (the "roots" of fungi). The company turns the materials into cost-competitive alternatives to traditional plastics products, including protective packaging and an engineered wood alternative.

Gordon's journey with Ecovative began the weekend before freshman orientation, where he met Sue Van Hook, former Skidmore professor and part-time mycological consultant to Ecovative. Inspired by their radical technology, Gordon stayed at campus over the summer to participate in Skidmore's Faculty-Student Summer Research Program, assisting the company in early grant work and biological studies.

After a second internship with Ecovative during the winter of his senior year, Gordon graduated from Skidmore and joined Ecovative full-time as a research biologist. As the company grew to scale up manufacturing efforts, Gordon found a new niche as product developer. He spent a year working with biologists, engineers, and the sales force to develop a new material blend that significantly increased the market of Ecovative's protective packaging product.

Following this experience, Gordon's role expanded to include technical sales and business development. A recent area of focus included qualifying sales & manufacturing partners in Asia; he was recently in Tokyo to meet with some of the largest packaging manufacturers in the region and build relationships with anchor customers.



Gordon now leads efforts to support Ecovative's licensee and partner, Sealed Air, in driving growth and accountability for the protective packaging program. In all his roles, Gordon's goal has been to extract marketable solutions from the continuous iterative development cycle that marks Ecovative's R&D department. Reflecting on his Skidmore education, Gordon writes, "I found [it] to set me up nicely for this sort of 'translational science', and to push for pragmatic solutions where possible."

Speaker Series

This past year brought several engaging speakers to campus. The ES Keynote speaker this year was Auden Schendler, VP of Sustainability at Aspen Skiing Company, who spoke about business and sustainability. Dr. Rami Zurayk gave a talk about the agrarian changes in the Middle East that have led to the Arab Uprisings. Dr. Jonnell Robinson gave a lecture on community geography and led a student workshop on GIS mapping techniques. Environmental activist Rod Coronado spoke about his fight to protect the grey wolf.

Auden Schendler, ES Keynote Speaker: Great Fear, Great Hope: Climate Change, Human Nature, and Effective Action

In September, the Environmental Studies Program welcomed Auden Schendler as this year's Keynote Speaker. Auden is the Vice President of Sustainability at Aspen Skiing Company and author of *Getting Green Done: Hard Truths from the Front Lines of the Sustainability Revolution*. He spent the day meeting with students over lunch in the dining hall, taking a walk through the North Woods with other students, and giving a guest lecture in Professor James Kennelly's Business and the Natural Environment class. Students found Schendler to be approachable, with his conversations ranging from his own experiences post-graduation to the sustainability initiatives he has led in Aspen.

He finished the day with a keynote address to students, faculty and staff, and members of the community on "Great Fear, Great Hope: Climate Change, Human Nature, and Effective Action" in which he discussed our fear of not being able to take care of our children in a changing environment and the hope that we can treat our neighbors as we would like to be treated. He argued that climate change is a big problem, so we need big solutions to address it, and many of these solutions will have to come from the top. Enacting sustainable initiatives in the business world is difficult, and conventional green

business actions are often ineffective. However, Schendler is part of a team at Aspen that has developed meaningful strategies, including a micro-hydroelectric plant, a solar photovoltaic farm, and a coalmine methane-to-electricity project.

A very engaging and funny speaker, Schendler left the audience uplifted and more optimistic about the future of sustainability and climate change than when they first took their seats. While questions were raised about specific solutions and "are my efforts worth it," Auden assured the audience that there is no single solution to the many issues we face and, while we should not hold ourselves to such a high standard or "green" that we lower our quality of life, every effort helps. The Skidmore community certainly has plenty to think about after this talk and its themes may resonate in discussions throughout the semester.

- Margie Pfeffer '15



Dr. Rami Zurayk: The Agrarian Roots of the Arab Uprisings

Last April, the ES Program brought Dr. Rami Zurayk to campus to give a talk entitled "Bread, Freedom, Social Justice: The Agrarian Roots of the Arab Uprisings." Dr. Zurayk is a professor in Ecosystem Management in the Faculty of Agricultural and Food Sciences at the American University of Beirut and author of *Food, Farm, and Freedom: Sowing the Arab Spring*. His talk focused on the agrarian transformations that have formed the basis for the uprisings in the Middle East and North Africa since 2010. That region is home to some of the world's most degraded lands and is particularly vulnerable to climate change. In addition, it has some of the highest unemployment and income inequality, fastest urbanization, and greatest food insecurity.

The Middle East was once known as the Fertile Crescent and was the birthplace of farming and the center of the origin of wheat. However, with the decline of the Arab agricultural sector, this region has become one of the world's largest importers of wheat. And despite rising migration rates and urbanization, the number of rural



individuals is still growing, increasing the number of people without access to food or land. Given this setting, Zurayk points out "it is hardly surprising that the insurrections, revolutions, ... and civil wars that are reshaping the Arab World were sparked in rural towns and fueled by thousands of jobless rural migrants chanting bread, freedom, social justice."

Dr. Zurayk's talk was co-sponsored by the Government Department, International Affairs Program, Office of Student Diversity Programs, and Office of the Dean of Special Programs.

Speaker Series (continued)

Jonnell Robinson: Points, Lines, and People: Plotting a Course for Community Geography



Last February, the ES Program partnered with the GIS Center to bring Dr. Jonnell Robinson to campus to give a talk entitled: “Points, Lines, and People: Plotting a Course for Community Geography.” Dr. Robinson is an Assistant Professor of Geography at Syracuse University’s Maxwell School, and uses her research to provide geography-based solutions to community problems.

The broad themes of Dr. Robinson’s work focus on health inequalities and

disparities, and all of her projects come from collaborations with the community. She began her work at Syracuse University by getting involved with the Syracuse Hunger Project, which was an effort to

get a picture of where the city’s hungry people lived and what services were available to them. By mapping geographic data such as food stamp office locations, pantry business hours, bus routes, and locations of people eligible for public assistance, people started to see the value of geography-based solutions. Phase II of the Hunger Project has focused on senior dining centers, areas without grocery stores (food deserts), and vacant lots that could potentially support urban community gardens. The results have helped support the creation of a mobile market, similar to a book mobile, that can serve areas with limited access to fresh food.

Other projects have focused on assessing adolescent reproductive health to find areas where outreach and education should be focused, mapping land where leases have been signed for fracking, and developing safe routes to school by increasing signage and steering away from dangerous areas. In each case, someone from the community proposes the project and the university helps them to determine a geographic solution.

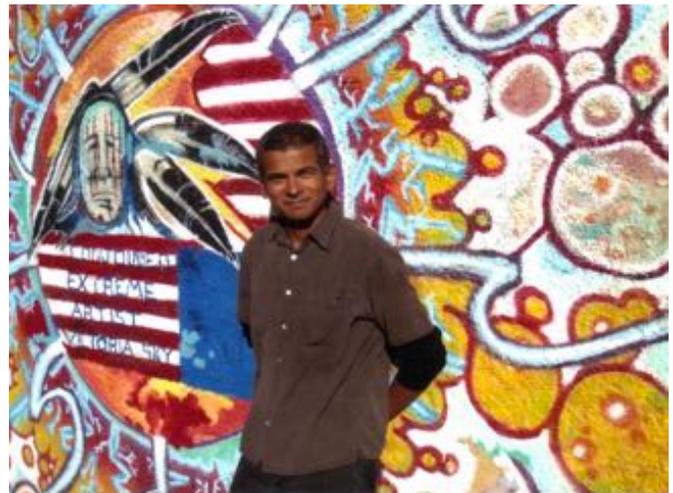
Dr. Robinson’s talk was co-sponsored by the Social Work, Sociology, and Economics Departments and the Office of Community Service Programs, as well as ES and The GIS Center. In addition to her talk, Dr. Robinson led a workshop on mapping, using data from the US Census Bureau, to help participants learn how to navigate the seemingly overwhelming amount of data to create effective maps and analyses.

Rod Coronado: A Voice in the Wild – Citizen Action to Save the Wolf ... Again

In March, the ES Program and the Sociology Department brought Rod Coronado to speak on campus. Coronado has been called one of the most notorious radical animal-rights activists from the far left of the environmental movement. He previously served close to a decade in federal prison for direct actions with the Animal Liberation Front, Earth Liberation Front, Earth First!, and Sea Shepherd, including sinking whaling ships and damaging whale-processing facilities in Iceland, and sabotaging mountain lion hunts in Arizona. His talk at Skidmore, entitled “A Voice in the Wild: Citizen Action to Save the Wolf... Again”, focused on the US Fish and Wildlife Service’s de-listing of grey wolves from the Endangered Species Act.

Grey wolves were a federally endangered species but lost their protected status in 2011 after their populations began to recover. Wolves are now viewed as game animals, and hunting has reduced their numbers by over 2000, more than a third of their total recovered population in the lower 48 States. Coronado believes we are inextricably linked to wildlife, however, and our survival depends on theirs, so wolves deserve to be protected.

Coronado no longer practices illegal activism, and instead advocates for writing letters and going through legal channels as a means to protect the environment, practices he once did not believe would work. He believes taking mainstream action can still be radical



because you are representing a different worldview by speaking for the animals. He does not regret any of his previous actions, however; when asked about his thoughts on spending time in prison, he said our lives are not just about protection ourselves, but that we also have a responsibility to protect others, including animals. Coronado concluded his talk, saying “we [humans] are all up against incredible odds when we defend the environment, but only by taking courageous actions can we succeed.”

The Water Resources Initiative (WRI) at Skidmore College brings together students, faculty, and community partners to investigate our local watershed. Through courses and research, WRI helps us better understand the multiple perspectives that influence how we interact with our water resources on both a local and global scale. The ES Capstone focuses on issues within the Saratoga Lake / Kayaderosseras Watershed.



Senior Capstone Projects 2014

To Boldly Go: The 2014 ES Capstone Class

The 5-year mission of Star Trek was "to explore strange new worlds, to seek out new life and new civilizations, to boldly go where no one has gone before." Under the guidance of Cathy Gibson, A.J. Schneller, and Bob Turner, the 2014 ES Capstone class took Captain Kirk's mantra to heart as they explored from Saratoga to the Hudson Valley, sought out fishers and zebrafish, and boldly went where no previous ES capstone team had gone: the City Council, a brewery, and area ski resorts. These are the adventures of the 41 students and 14 projects, the largest Capstone class in ES history.

Nonie Crossnohere, Joe Marto, and Julia Sabatino's analysis of the impact of **trace pharmaceuticals** on zebrafish would have made Spock proud. Alexandra Guest, Ben Greer, Dalton Weinstein, and Chris Antonez captured photos of the elusive fisher and its prey, porcupines, using remote cameras to assess the feasibility of creating a **biological corridor for fishers**. Alas, no sighting of tribbles.

Jenn Garvin, Faith Nichols, and Lauren Schilling testified before the City Council on how to improve the **household hazardous waste program**. Emily Culbert, Sarah Arndt, and Kate Johnson's **smart growth study** found residents of Beekman Street liked living in a mixed-use neighborhood, but were divided about how growing commercial businesses would affect their quality of life. Attending comprehensive planning board meetings and reviewing every Saratoga Springs comprehensive plan dating back to 1949 gave Josh Inaba, Katherine Rosman, and Leslie Velásquez valuable insights into the

Rachael Bowen, Marie Nicol, and Will Conway The New Farmer Movement: An Ethnographic Study

We investigated the identities and motivations of new farmers in the Hudson Valley to assess their potential political and economic impacts. Farmers had mixed reactions to their labeling as a social movement. Farmers shared a common love of the tangibility of farming and a common discontent with the current industrialized food system. They hoped to affect local economies, but were not motivated by the potential to alter the broader capitalist system.

Eliza Sherpa, Nicole Shepherd, and Janet Vidal Uncovering Environmental Injustice in Albany NY

Literature on environmental justice (EJ) often fails to incorporate the perspectives of underrepresented communities most affected by environmental ills. Our research found differing definitions of EJ, a discrepancy between formal organizations and community groups in terms of which issues were top priorities, and an overall division between mainstream environmental movements and EJ communities. Repairing this divide will require place-based knowledge through community-based participatory research.

historical origins of **sustainability and smart growth** in the Spa City. Nicole Shepherd, Eliza Sherpa, and Janet Vidal found stark differences in the priorities of state and national environmental organizations and those of local Arbor Hill residents in the first capstone project on **environmental justice** issues in Albany (hint, it's not bomb trains).

It is hard to believe, but no ES capstone team had studied skiing or beer until last year. Andrew Blake and John Crisan studied the importance of business strategies to New York ski resorts' ability to **adapt to climate change**. LJ Combs, Jack Marston, and Rebecca Schwartz examined **sustainability in craft brewing** at the Olde Saratoga Brewing Co.

Once again, ES Capstone students studied the difficulty of going green on the Skidmore campus. Margot Reisner, Kate Brittenham, Max Conley, and Will Blasini study of Skidmore's campus landscaping revealed the complexity of adopting **sustainable landscape design** and practice. Jenna Spooner, Caitlin White, and Anne Weiss's study of solar facilities at Skidmore and twolandfills revealed the importance of policy entrepreneurs in promoting **renewable energy** sources.

Once again, Michael Pollan's shadow loomed large as the Capstones studied all aspects of food systems. Tera Johnson, Aoife Semar, and Kate Justin Taylor studied **farmers' perception of soil quality** and its implications for disease management. Marie Nicol, Will Conway, and Rachael Bowen interviewed **new farmers** in the Hudson Valley. Elizabeth Cohen, Olivia Powers, and Kana Miller analyzed the accessibility of the **local food community** in Saratoga Springs.

- Bob Turner

Elizabeth Cohen, Olivia Powers, and Kana Miller Are You What You Eat?

The local food movement seeks to create an alternative food system to address social and environmental concerns by rejecting large-scale, industrial agriculture. However, because of its emphasis on consumer purchasing power, it is often criticized for being elitist. We attempted to characterize the local food community in Saratoga Springs, New York and deconstruct the ways in which social culture contributes to both its accessibility and inaccessibility.

Jack Marston, LJ Combs, and Rebecca Schwartz Please Enjoy Sustainably: New Ideas for Olde Saratoga Brewing

Brewing beer is an energy- and resource-intensive process, from importing ingredients, through many phases of the brewing process, to distribution of the final product. Many craft brewers across the nation are attempting to mitigate their environmental impact. We investigated current sustainability practices and efficiency measures in craft breweries, and used the findings to inform an action research plan for Olde Saratoga Brewing Company, including feasible strategies to reduce energy and resource use.



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Senior Capstone Projects 2014 (continued)

John Crisan and Andrew Blak

The End of Skiing? Business Strategies of 6 NY Ski Resorts

The first humans to strap long pieces of wood to their feet lived during the most recent Ice Age – 8000 BC. Today, skiing has become a way of life for some, and declarations of its approaching demise have caused upset. We examined historic precipitation patterns, future climate and snow cover projections, and business theory to predict the effect of climate change on ski resorts.

Jennifer Garvin, Faith Nicholas, and Lauren Schilling

Public Participation in the Saratoga Household Hazardous Waste Collection Program: Community Based Action Research and Recommendations

We examined the current household hazardous waste (HHW) program of Saratoga Springs in the hopes of enhancing participation and expansion. We researched other municipal HHW programs in New York State and surveyed Saratoga Springs residents. We recommend the following: utilize permanent facilities within the community, hold collection days multiple times a year, and provide substantial educational material.

Josh Inaba, Katherine Rosman, and Leslie Velasquez
Economic Growth, Politics, and Comprehensive Planning

Saratoga Springs is challenged with planning for future development that balances growth with conservation of natural resources. We conducted an analysis of the city's comprehensive plans over the last 50 years and interviewed various stakeholders. Despite conflicts between competing interests, the outcome of comprehensive plans and the work of local politicians have balanced economic, sustainability, and social goals.

Kate Brittenham, Max Conley, Will Blasini, and Margot Reisner
Growing a Green Campus: Sustainable Landscaping at Skidmore

Human attempts to control nature through landscaping create problems. By working in conjunction with ecological cycles, sustainable landscaping practices can regenerate rather than degrade the environment. We compared the ecological impacts of traditional landscaping to the benefits of sustainable landscaping, and used other institutions as examples to develop a guide for best practices, costs and benefits, and a timeline for sustainable landscaping at Skidmore.

Jenna Spooner, Caitlin White, and Anne Weis
Taking the (Sun) Initiative: An analysis of solar installations in New York's Capital Region

Fossil fuels are the largest source of greenhouse gas emissions. We investigated the incentives, challenges, and barriers to implementing commercial solar installations at three sites in Saratoga Springs and Troy, and at Skidmore College, through research and interviews. While financial incentives for solar projects are difficult to get but necessary for implementation, the people behind these initiatives seem more interested in their moral responsibility.

Nonie Crossnohere, Joe Marto, and Julia Sabatino

Side Effects May Include: The impacts of trace pharmaceuticals and personal care products on zebrafish (*Danio rerio*)

Pharmaceuticals and personal care products (PPCPs) are becoming increasingly present in U.S. waterways due to incomplete removal at wastewater treatment plants. This study examines the effects of high concentrations of caffeine, fluoxetine, and 17- β -estradiol on zebrafish. We found that while the zebrafish experienced increased metabolic stress when exposed to concentrations of the compounds, they did not experience developmental alterations that could influence survival.

Alexandra Guest, Ben Greer, Dalton Weinstein, and Chris Antonez
Fishing for Fishers: A biological corridor proposal for mid-sized mammals in Eastern Upstate NY

Human development can fragment and degrade habitats. We propose a biological corridor in Saratoga County, NY to mitigate the impact of habitat fragmentation on native species, particularly the fisher. We found a positive correlation between basal land cover and the presence of fishers, indicating the importance of forest conservation. The existing land use regime allows mid-sized mammals to disperse between Skidmore College and Moreau Lake State Park and should ensure minimal loss of habitat connectivity in the future.

Tera Johnson, Aoife Semar, and Kate Jestin Taylor
Understanding Disease Management and Farmer's Perception of Soil Quality in a Rural US Farming Community

Soil plays a critical role in supporting plant and animal life, but pathogens can create diseases that result in crop loss and cause a cascade of negative effects. We examined how fungicide management techniques influence soil dynamics and explored how farmers get information to guide their management practices. Most local farmers rely on the Cornell Cooperative Extension for most information.

Kate Johnson, Emily Culbert, and Sarah Arndt
The Buzz on Beekman: An examination of New Urbanism at the neighborhood level

Examining urban revitalization at a neighborhood level provides a manageable scale to assess whether development fosters relationships, builds community, and is sustained through multiple generations. We used the Beekman Street neighborhood on the west side of Saratoga Springs as a case study. Residents valued three key tenets of New Urbanism – walkability, mixed-use, and density – but were concerned with potential negative effects of increased commercialization.

The 2014 ES Capstone class celebrates at the end of their presentations.



ES in Action



Students from ES 352D, Environmental Education, worked with groups of all ages, including kids from the Apple Blossom Bunch daycare. Eliza Hollister '15 (above) and Melvin Alvarez '15 (below) teach the kids about gardens and farming.



ES 105 students assess stream quality using macroinvertebrates as bioindicators. Calling all former ES 105 students – can you name any of the bugs on the right ?!



Sustainability Coordinator Levi Rogers leads a class of ES 100 students on a tour of campus sustainability initiatives.



Alyssa Hagerbrant '16 works the fields of an organic farm in Panama where she studied abroad.



Rain or shine, ES 105 students spend most of their labs outside, exploring the geology, chemistry, and biology of the Loughberry Lake watershed..



ES 105 students had fun breaking in the new ES canoes on Loughberry Lake this past fall.

