

CANOPY

SPRING 2019

ALUMS MAKING A STRONGER,
MORE SUSTAINABLE NEW HAVEN

Page 16



Yale SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES



A Growing Nation

A group of F&ES students travels to Rwanda each year with faculty members Bill Weber and Amy Vedder to learn about wildlife conservation, ecotourism, and local culture. Students visit several national parks, including Nyungwe National Park in Rwanda, where sustainable land management practices like terrace farming (seen here) have become more commonplace.



BEN ZUKOVSKI

This sunbird was spotted by F&ES students at Giskura, near Nyungwe National Park in Rwanda, during an annual trip overseen by faculty members Amy Vedder and Bill Weber.

CANOPY

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A.J. HUDSON

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Students walk through a longleaf pine savanna ecosystem in the Florida panhandle during the annual southern forestry spring field trip. For more photos, go to page 26.

Toolkit for an ‘Apocalypse’

BY GEOFFREY GILLER '14



In New Delhi, as in many other parts of India, the air pollution crisis is painfully obvious to any observer. On the worst days, the air is hazy, obscuring even nearby buildings; it's unhealthy to be outside without a mask for any amount of time. The amount of airborne particulate matter 2.5 microns in diameter or smaller can be more than 20 times higher than what's considered a safe level, especially from October through December.

On those days, “you’d feel like, this is the definition of hell,” said Abhilasha Purwar ’17 M.E.M., who grew up in the suburbs of Delhi. “This is as apocalyptic as it can get.”

Despite that, she says, many people in India seem to simply accept the air pollution conditions. Purwar wants to empower people to learn more about air quality so they can both protect their own health and, eventually, spur broader changes in air quality across the country. To do so, she and her company, Blue Sky Analytics, have launched an app called BreeZo.

In some ways, Purwar’s motivation for BreeZo is obvious: It’s hard to experience such devastating pollution and not feel the need to do something about it. She also knows that without significant change, air pollution in India is only going to worsen.

She has a sense of her own ability to effect change — and she plans to try.

“Otherwise, 10 years from today, what would I tell myself?” said Purwar, who also attended the Indian Institute of Technology and is a Fulbright scholar. “The system has given me the best education possible, the best network.”

BreeZo takes advantage of existing datasets. A network of air quality monitors around India provides high-quality, real-time data run by the government and some private companies; lower-cost monitors are also deployed by individuals and smaller businesses. These on-the-ground measurements are coupled with satellite imagery that captures reflectance across multiple spectra, from which different contributors to air pollution — such as nitrogen oxides and sulfur dioxide — can be parsed out.

Purwar said that her team didn’t need to build the models that convert this imagery into data, as NASA, the European Space Agency, and universities already do so. Instead, the company is compiling the data into a form that can show at a glance what the historical and recent air quality has been at locations across India, displayed as a reading on the National Air Quality Index, which goes from zero (best) to 500 (worst).

When she lived in New Haven, with its unpredictable New England climate, Purwar noticed that she and her classmates checked the weather forecast every day. She wants

to make checking air quality — which, in India, also varies drastically day to day — as easy as checking the weather, so users can make decisions about, for example, whether to wear a mask when they’re outside or whether or not to go out at all. (After recently suffering heatstroke in an unseasonal heat wave, Purwar has decided to add heat wave warnings to the app as well.)

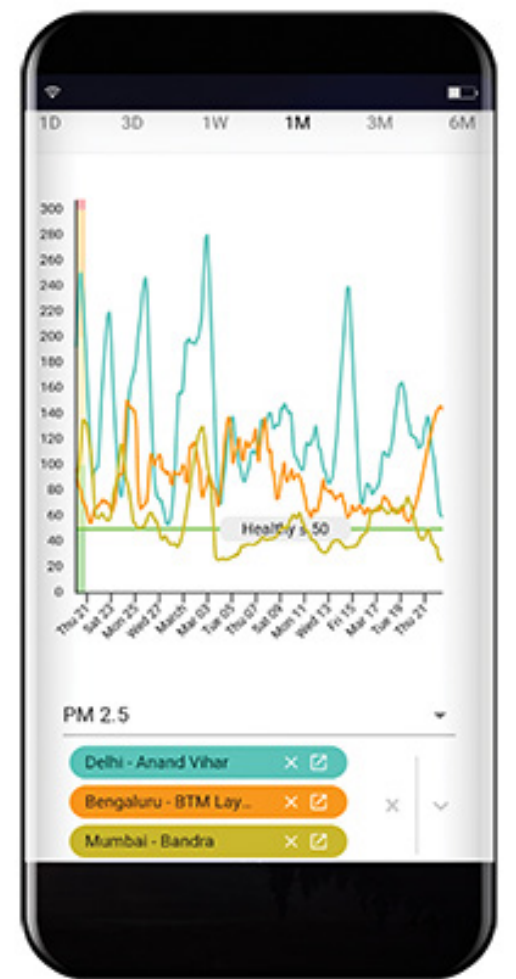
Of course, masks, air purifiers, and other products designed to protect individuals from air pollution, explained Purwar, are like putting “a Band-Aid on cancer.” They may temporarily address the symptoms but do nothing about the root cause. Not that she goes without them: “I would not live in India without having access to these products,” she adds.

Ultimately her ambitions are much grander. She wants Blue Sky Analytics to be the place companies in India go to for geospatial data and analysis. She believes that by making it “as easy ... to access this high-quality environmental data as it is to order your Uber,” she can help companies who want to improve their environmental impact.

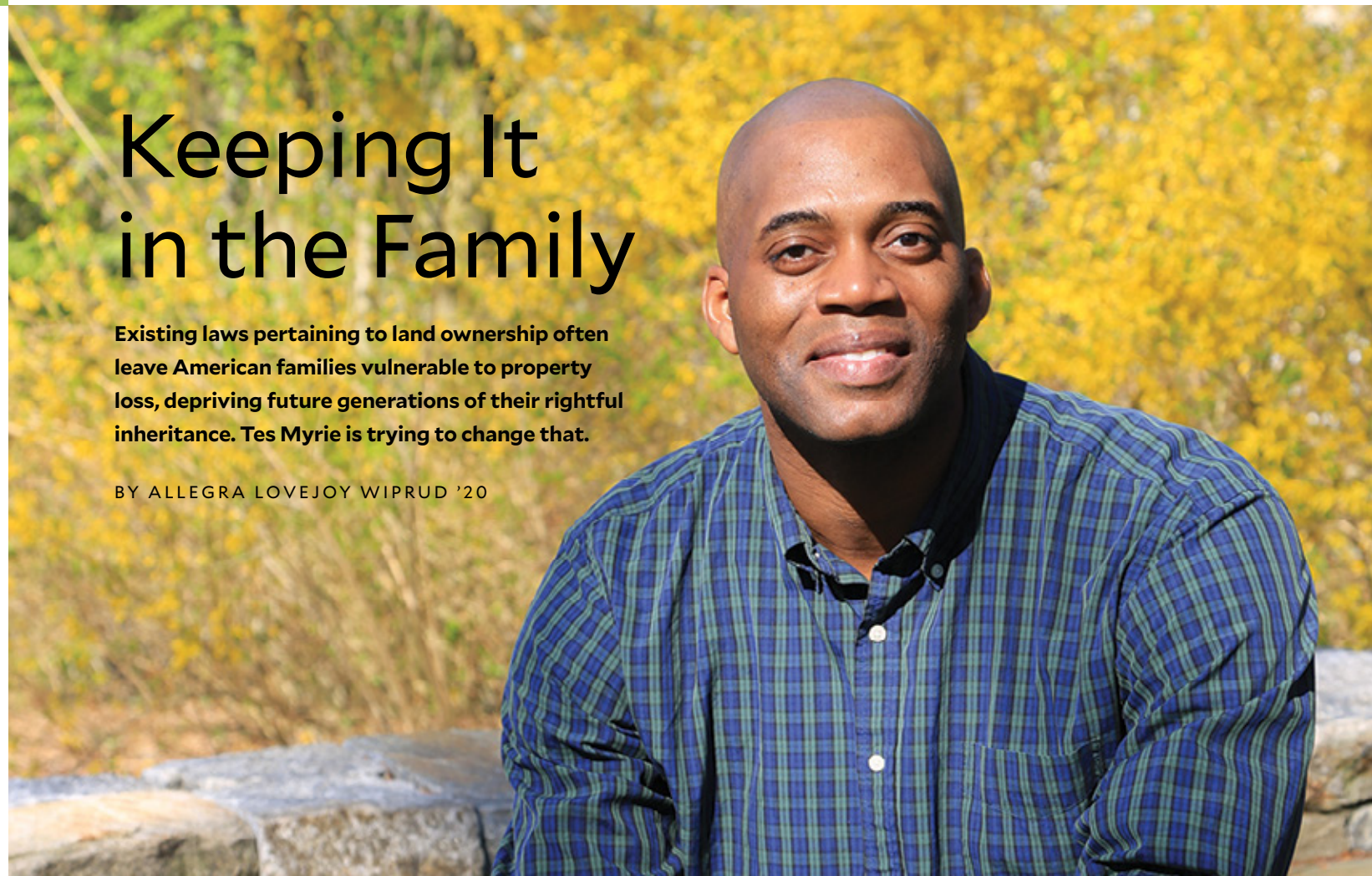
By reducing barriers to getting the data they need, Purwar hopes to make it easier for companies to implement existing solutions — for example, by building power plants that use leftover crops as biofuel instead of burning them in the fields. The smoke from those burning crops is a major contributor to the deadly haze in New Delhi and elsewhere in India.

Referring to the app, she said, “I think it has potential for real change and real impact.”

The BreeZo app allows users to compare air quality across time and location.



MATTHEW GARRETT



Keeping It in the Family

Existing laws pertaining to land ownership often leave American families vulnerable to property loss, depriving future generations of their rightful inheritance. Tes Myrie is trying to change that.

BY ALLEGRA LOVEJOY WIPRUD '20

Practicing forestry — especially in the U.S. South, known as the nation’s “wood basket” — requires more than a basic understanding of one or two tree species. It’s also the art and science of place, including the human dimension, says Tes Myrie ’19 M.F.

The intricacies can be complicated. Take the concept of “heirs’ property,” a phenomenon most common in Southern states where title to land remains in the name of a person even after he or she has died, while the land rights are passed down, informally, from one generation to the next.

During an event at F&ES last fall, Myrie heard a Southern forester, Sam Cook, explain this and other factors that historically have left some Americans — especially African-American families — vulnerable to exploitation and land loss. Myrie has gotten to know Cook, who works at North Carolina State University, and they’ve begun working on a project they hope will help historically underserved landowners build wealth that they can pass on to the next generation. *Canopy* caught up with Myrie before his graduation in May.

Tell us about your project.

I’m starting in the Lowcountry of South Carolina; specifically, I’m exploring a timber investment management organization model in which I can work with landowners to create a range of opportunities for income generation, sustainable forest management plans, and an infrastructure for generational wealth. My big question is: How does this segment of the population take advantage of the opportunities that are available to those with legitimate claim to their land and access the capital necessary to manage their land for income in perpetuity?

What circumstances are these landowners generally experiencing?

On average, these families hold 10 to 25 acres inherited from preceding generations with diminishing capacity to capture and maximize the value of their land. They are often older and looking for some steady income as they plan to retire but are not sure how to do that with their land. One of the big challenges people face is the “heirs’ property conundrum,” where land is passed down without clear title. There has to be a generational continuum so that members of the next generation — including those who have migrated to urban centers — do not lose their connection to the land and better understand their rights and responsibilities as owners and stewards of the land. We need grassroots efforts to disseminate relevant information about the requirements for managing their land and, subsequently, how it builds a familial wealth infrastructure.

There was once more than 20 million acres of land owned by African-Americans throughout the South. Today, the number has plummeted to as low as 1 million acres, exacerbating economic disparities throughout the region but effectively nationwide. For example, some of these remaining owners, because they do not have clear title, cannot receive federal aid for damages caused by the major natural disasters of 2017 — hurricanes Harvey, Maria, and Irma — much less legally manage their land for income.

How did you become involved in these issues?

In part, my inspiration is personal. My parents are Jamaican expatriates and are very spiritual. Although we lived in the Greater New York area, my parents instilled in us a reverence for the land. A few years ago, my dad moved to South Carolina and started cultivating farmland. However, when there was a legal challenge to his ownership, his sweat equity and capital investment were immaterial. The vision of an enterprising organic farm was unceremoniously terminated, and he was forced to vacate the property. Less than a month after learning of this, I met Sam Cook, who delivered a powerful presentation about his work in South Carolina with heirs’ property.

In that sense it has been very recent, but in another sense it is also a longstanding interest. I studied economic history as an undergraduate, focusing on the transatlantic slave trade and its effects on the current world economic order. This work is part of a larger vision of which I am just one small part.

Where do you hope to go with this in the future?

My plan is to continue this work in Mozambique to ensure that its state-owned land is properly managed for long-term sustainability and for strong income generation, down into the local communities. There has to be, at some point, vertical integration where all parts of the supply chain are directly tied to the people producing the natural resources. Rather than continuing the legacy of the extraction of resources — first human and then natural, from sub-Saharan Africa with little to no premium beyond the initial transaction (i.e., the very first link in the supply chain) — my hope is to work toward a fully integrated system of trading into the world market. It’s economic development, building intergenerational stability, and managing land well so that resources maintain an economic connection to the people. The way to do one’s best work is being in service to a higher purpose and a movement that’s bigger than we are. To think seven generations ahead and seven generations back. Then you can never, ever think it’s about you.



Drawing Conclusions

The Yale Chapter of the International Society of Tropical Foresters hosted its 25th annual conference in January at F&ES, bringing together practitioners, activists, and indigenous leaders from around the world. During each session, calligrapher Heather Leavitt Martinez sketched out the dynamic, interweaving themes as the discussion unfolded.

NEWS & NOTES

Dean Burke Named Ecological Society of America Fellow

For her contributions to the field of ecology, Dean Indy Burke has been named a 2019 fellow of the Ecological Society of America (ESA). The lifetime appointment honors ESA members and advancement to leadership positions in the organization, at the members' institutions, and in broader society.

Burke was cited for her research and pedagogy in the area of ecosystem processes, particularly carbon and nitrogen cycling in semi-arid rangeland and grassland ecosystems, and how these areas are influenced by land use management, climatic variability, and regional variability.

A Podcast with Heart

On your next commute, queue up a new podcast from F&ES, "Heartwood." Hosted by Thomas RaShad Easley, assistant dean of community and inclusion, the debut season of eight episodes focuses on the intersection of forestry and diversity. The wide range of topics include leadership, sustainability, diversity in the workplace, music, and wildlife ecosystems.

Guests include F&ES Dean Indy Burke; Julia Pyper, a host of Greentech Media's popular "Political Climate" podcast; Jennifer Verdolin, a professor at the University of Arizona; and Jarami Bond, an up-and-comer in the field of sustainable business.

Listen now on SoundCloud: yalef.es/heartwood

Klee Returns to F&ES

After a decade at the Connecticut Department of Energy and Environmental Protection — including a turn as commissioner — Robert Klee '99 M.E.S., '04 J.D., '05 Ph.D., returned to F&ES this spring. Klee taught a capstone course, "Subnational Playbook for Significant Greenhouse Gas Reductions by 2030," aimed at developing strategies for local entities to combat global warming, as well as an undergraduate course in Yale College's Environmental Studies program.

"I've certainly taken a nontraditional path into teaching," said Klee. "But I think it gives me an advantage — I can show students interested in careers that combine sustainability with politics or business what that looks like in practice."

Seed Funding for F&ES-Born Venture

Renewal Mill, an F&ES-born startup that turns food waste into new products, recently received \$2.5 million in seed funding from HG Ventures, the venture capital arm of The Heritage Group.

The California-based company — created by Sumit Kadakia '16 M.E.M./M.B.A. and Claire Schlemme '11 M.E.M. — identifies and converts products found in existing food waste streams into new foods, keeping them out of landfills and reducing environmental impacts. According to Renewal Mill, these milled products — including okara flour — are nutritious, high in fiber, and flavorful without using synthetic processing techniques or unnatural fortification.

The project won the 2016 Sabin Sustainable Venture Prize, an annual contest coordinated by the Yale Center for Business and the Environment.

Donoghue Tabbed to Head Yale Institute for Biospheric Studies

To assume his new leadership role as senior associate dean of research and director of doctoral studies, Oswald Schmitz stepped down as the director of the Yale Institute for Biospheric Studies (YIBS). Enter Michael Donoghue, Sterling Professor of Ecology and Evolutionary Biology, who was named the new director of YIBS in December 2018.

Donoghue, who also holds a faculty appointment in Yale's Department of Geology and Geophysics, is the curator of the Botany, Paleobotany, and Informatics divisions of the Peabody Museum, where he also served as director from 2003 to 2008. He was elected to the U.S. National Academy of Sciences in 2005 and was named a fellow of the American Academy of Arts and Sciences in 2008.

Ashton Honored by New England Society of American Foresters

Mark Ashton, Morris K. Jesup Professor of Silviculture and Forest Ecology, was named the recipient of the 2019 David M. Smith Award by the New England Society of American Foresters (NESAF). The award is presented to a NESAF member who is engaged in research, teaching, or the field application of silviculture and honors David Martyn Smith '46 M.F., '49 Ph.D., who taught at Yale for a number of years in Ashton's current role.

Ashton, who is also the director of School Forests, was a student of Smith's, taking over the teaching of both silviculture and forest ecology in 1991 and oversight of School Forests in 2000.

MIINT Condition

A team of Yale students — including Emma Broderick '21 M.E.M./M.B.A. and Leah Yablonka '19 M.E.M. from F&ES — this spring won the top prize at the MBA Impact Investing Network & Training (MIINT) competition, where students from around the world present business ideas to a panel of investors and entrepreneurs. The Yale team created EVmatch, a peer-to-peer electric vehicle charging app that provides financial incentives for owners of residential and commercial charging stations.



Greening China's Belt and Road Initiative

In 2013, Chinese President Xi Jinping introduced his signature foreign policy program: the Belt and Road Initiative (BRI), a nearly \$1 trillion investment in infrastructure projects across Eurasia, Africa, and Latin America.

Positive reaction to the initiative has focused on the diplomatic benefits of connecting various regions and providing new avenues for infrastructure improvements in developing nations. But further scrutiny of the BRI is starting to reveal what many had feared might happen – extractive commercial practices, the stifling of public opposition, and, critically, a disregard for environmental impact.

The Third Yale Symposium on Chinese Overseas Investment Impacts held in January at F&ES focused on the environmental consequences of the BRI, bringing together experts from across academia and NGOs to participate in panel discussions on the need for China to become a leader on climate action and the effects of the BRI on communities and ecosystems. Panels included discussions on the history of the BRI; sustainable finance; and the impact of the BRI in Asia, Africa, and Latin America.

“We didn’t want this event to simply critique China,” said Nick Lo ’19 M.E.Sc., one of the student organizers of the symposium. “We wanted to provide a space to introduce the many different dimensions of the Belt and Road Initiative and constructively discuss the ways that Chinese investments are shaping the world today – for better or for worse.”



F&ESers Pass the Baton at New York Parks

Erik Kulleseid '94 M.F. was appointed commissioner of New York State's Office of Parks, Recreation, and Historic Preservation in January, replacing Rose Harvey '84 M.E.S. after an eight-year tenure.

Harvey, the Dorothy S. McCluskey Visiting Fellow in Conservation at F&ES in 2010, is renowned for securing funding increases, boosting park visitation, and launching the 750-mile Empire State Trail. During her tenure, she also oversaw the beginning of Gov. Andrew Cuomo's 10-year, \$900 million plan to restore New York's state parks and historic sites by 2020.

Kulleseid, who previously worked at the Office of Parks and the Trust for Public Land, will be tasked with finishing the major initiative. He is the former senior vice president at the Open Space Institute, co-founding its Parks Initiative.

Two Faculty Chosen to Serve on Connecticut Academy of Science and Engineering

F&ES faculty Michelle Bell and William Lauenroth have been elected to the Connecticut Academy of Science and Engineering, a state-based nonprofit that identifies and studies issues and technological advancements in the sciences.

Bell, Mary E. Pinchot Professor of Environmental Health, studies how human health is affected by atmospheric systems. Lauenroth is a pioneer in the field of drylands ecology, with extensive research experience across the U.S., South America, and Asia.

Of the 24 individuals elected this year, 13 are from Yale. Other F&ES members include Dean Indy Burke, Paul Anastas, Thomas Graedel, Robert Mendelsohn, Peter Raymond, Karen Seto, and Julie Zimmerman.



PETER OTIS

LEADERSHIP COUNCIL 2019

On April 25 and 26, the Yale School of Forestry & Environmental Studies (F&ES) Leadership Council gathered for its annual meeting in New Haven. The theme of the symposium was “Designing a Sustainable Future: Molecules, Materials, and Manufacturing,” which showcased the work of F&ES faculty Julie Zimmerman and Paul Anastas. The keynote address was delivered by John Warner, the president and chief technology officer of the Warner Babcock Institute for Green Chemistry who co-authored the groundbreaking “Green Chemistry: Theory and Practice” with Anastas. The meeting included an alumni panel that featured Brendan Edgerton '14 M.B.A., '15 M.E.M., director of circular economy at the World Business Council for Sustainable Development; Patrick Foley '11 Ph.D.,

chief science officer at P2 Science; and Charissa Rujanavech '13 M.E.M., a recycling innovation engineer at Apple. The program also featured a “state of the school” presentation from Dean Indy Burke, who provided the council with an update on the exciting progress relating to the School's strategic plan.



Ongoing Dialogue Invites Big Ideas for a More Sustainable World

The path to a sustainable future is going to require many big ideas on multiple fronts. The Yale Environmental Dialogue, an F&ES initiative that aims to inject new energy and fresh thinking into the national conversation and to identify future solutions to these challenges, is trying to do something about that.

In February, the Yale Environmental Dialogue convened more than 100 leaders from across many professional sectors – including government, industry, NGOs, and academia – to share their big ideas. During a two-day workshop, they discussed these ideas and innovations and identified potential impediments as well as pathways forward.

Some called for new strategies to incentivize green energy innovation and investment or reimaged models of conservation while others called for stronger local action on critical issues or made the case that the moment calls for global solutions.

Many agreed that confronting the existential threats facing society will require changing the consciousness of the American public. Indeed, again and again participants conceded that the failure to address environmental challenges on so many levels reflects a failure of communication. So they called for new communication strategies that reach across generations and political ideologies and aim to inspire.

Although the challenges are daunting, human society has the intellectual expertise and technical capacity to address them, F&ES Dean Indy Burke told workshop participants. “While there is a lot to be concerned about, it’s important to be inspired by the opportunity that we have,” she said. “That is exactly what we want to address with this initiative.”

Finding meaningful answers to these concerns will require overcoming differences in geography and discipline, generation and political ideology, organizers said. Indeed, the event included invited guests from across the U.S. and around the world – from California to the U.K. – and from a wide range of sectors. They represented large law firms and small planning offices, land banks in Appalachia and departments inside the United Nations.

The ideas they discussed will be featured in a book, “A Better Planet: Big Ideas for a Sustainable Future,” which will be published by Yale University Press in September 2019.

And that is just the beginning. In the coming months, the Yale Environmental Dialogue will convene additional high-level discussions in cities across the U.S. on a range of issues.

Mapping the Future of U.S. Forests

While he was a student at F&ES, Zach Parisa ’09 M.F.S. developed a technology that uses satellite data to determine the size and species of trees in forests. That innovation would eventually become SilviaTerra – co-founded by Parisa and Max Nova, a 2012 graduate of Yale College – which helps improve forest management and the return on investment for some of the nation’s largest timber companies.

Now, with a grant from Microsoft’s AI for Good initiative, the company has created the first high-resolution inventory of all U.S. forests, a tool that will help conservationists, government organizations, and landowners make better forest management decisions. For this project, SilviaTerra is using Microsoft Azure, high-resolution satellite imagery, and U.S. Forest Service inventory and analysis field data to train machine-learning models to measure forests.

“Forests are made up of complex interconnected systems, and there’s never been a way to measure all of these systems,” says Parisa. “And you can’t manage what you can’t measure.”

Water Works

A Yale study led by Kelly Aho ’15 M.E.Sc., a Ph.D. candidate at F&ES, revealed new insights into the factors that influence the release of greenhouse gases from rivers and streams, including a key relationship between storm events, ecology, and topography in moderating this release. The findings were based on an analysis of headwater streams in central Connecticut.

RESEARCH UPDATES

Comita Receives NSF Grant for Tropical Forest Research

Liza Comita, an assistant professor of tropical forest ecology at F&ES, has received a prestigious award from the National Science Foundation (NSF) that will support her research into the factors that shape the rich and persistent biological diversity in the world’s tropical forests.

Comita will receive \$620,000 through the NSF’s Faculty Early Career Development program, which supports the research of early-career faculty.

During the five-year study, she will investigate how environmental variables (such as light and water availability) and biological variables (such as density and identity of neighboring plants) influence patterns of tree seedling survival and

ultimately help maintain high levels of diversity in tropical forests.

Comita expects the project will ultimately provide insights into how plant diversity is maintained but will also help scientists better predict the future composition and diversity of tropical forests in the face of numerous threats, including changes in precipitation as a result of climate change.

“This integration of field data and new forest simulation models will significantly advance our understanding of the mechanisms that shape tropical tree communities and will provide a framework for predicting changes in tropical forest diversity and species composition in response to shifts in climate,” she said.

Schmitz Named Senior Associate Dean of Research

Oswald Schmitz, Oastler Professor of Population and Community Ecology, has accepted the role of senior associate dean of research and director of doctoral studies at F&ES. He replaces Karen Seto, who held the role for the last four years.

Schmitz is one of the most prominent researchers of the link between biodiversity and ecosystem services, in particular predator-prey relationships, carbon cycling, and the impact of climate change. In 2015 he was named a fellow of the Ecological Society of America and in 2017 released a book, “The New Ecology: Rethinking Science for the Anthropocene.”



The Complicated Future of Offshore Wind

While a U.S. Department of Energy (DOE) report laid out an ambitious plan to expand the nation's wind sector into offshore waters, a recent Yale study found that implementing such a plan won't be as simple — or, potentially, as green — as it might seem.

Writing in the journal *Nature Sustainability*, former F&ES postdoc Tomer Fishman and F&ES Professor Emeritus Thomas Graedel recently made the case that the DOE's plan fails to address, among other challenges, the difficulty of supplying the rare-earth metals needed to produce offshore turbines. A small wind farm off the Rhode Island coast, for instance, required enormous amounts of neodymium, a rare-earth metal that today is mined mainly in China, Fishman says. The DOE report, they write, failed to take into account the potential bottlenecks — including political, economic, and environmental complications — that might occur at any step along the supply chain.

Research on Fracking Impacts Earns 2019 Bormann Prize

Many studies have looked at the impact of hydraulic fracturing, or fracking, on groundwater. But usually they have required researchers to knock on the homes of people living near active wells and ask permission to test their faucets.

Doctoral candidate Erica Barth-Naftilan '13 M.E.M. took a different approach. Working with Yale colleagues, the F&ES doctoral student convinced a Pennsylvania gas company to share access to the area near well pads and a drilling schedule. This allowed her and her team to collect water samples monthly before, during, and after drilling in the Marcellus Shale and to publish the results in the *Proceedings of the National Academy of Sciences*.

The study — which concluded that methane concentrations in deep groundwater varied over time and that these variations were unrelated to shale gas development — earned Barth-Naftilan the sixth annual F. Herbert Bormann Prize, an award that honors an F&ES doctoral student whose work best exemplifies the legacy of the longtime professor.

“The study is exemplary in that it soberly addresses an issue that is fraught with political controversy, in which there is willingness and tendency by environmental advocates to lay blame on oil and gas exploration,” said Oswald Schmitz, Oastler Professor of Population and Community Ecology and senior associate dean of research. “The research shows that the evidence does not align with the conventional environmental narrative.”



Oswald Schmitz, left, Chris Bormann, Erica Barth-Naftila, and James Saiers

Combating Climate Misinformation

Just as the scientific community was reaching a consensus on the dangerous reality of climate change, the partisan divide began to widen, says Justin Farrell, an assistant professor of sociology at F&ES. That might seem like a paradox, he said, but it's also no coincidence. It was around this time that an organized network started to coalesce around the goal of undercutting the legitimacy of climate science.

In a recent paper published in *Nature Climate Change*, Farrell and two co-authors — including Kathryn McConnell, a Ph.D. student at F&ES — illustrate how a large-scale misinformation campaign has eroded public trust in climate science, but also provides insights into what might be done about it. “Many people see these efforts to undermine science as an increasingly dangerous challenge, and they feel paralyzed about what to do about it,” said Farrell. “But there's been a growing amount of research into this challenge over the past few years that will help us chart out some solutions.”

Bell Examines Effects of Urbanization, Climate Change in Brazil

Rapid urbanization in parts of Brazil has degraded air quality and exacerbated the urban heat island effect, with profound implications for public health. Those impacts will only worsen as the climate changes, as heat waves are expected to occur more often, burn hotter, and last longer.

Michelle Bell, Mary E. Pinchot Professor of Environmental Health at F&ES, recently received a \$640,000 grant from the U.K.-based Wellcome Trust to study the health impacts of these twin challenges in two major Brazilian cities, São Paulo and Rio de Janeiro.

During the three-year study, Bell and colleagues from North Carolina State University and multiple Brazilian universities will use state-of-the-art methods to determine how air pollution and weather — including heat waves — are affecting human health today and the potential impacts under a changing climate. They will also evaluate how climate change policies could affect air quality in the short term.

“The decisions made in the next few years will affect public health for decades to come,” said Bell. “This project has the potential to considerably improve societal welfare by informing decision-makers at the community, regional, and national levels on the consequences of air quality and climate change policies.”

Established in 1936, the Wellcome Trust is a biomedical research charity that funds investigation to improve human and animal health.

Landmark Report on Urban Natural Forest Areas

Researchers at F&ES recently partnered with the Natural Areas Conservancy (NAC) and the Trust for Public Land to create a first-of-its-kind report on how U.S. cities manage urban natural forest areas. In a survey of 125 organizations in 110 metropolitan areas, they found that these areas account for 1.7 million acres of land — an area larger than Delaware — but often don't receive the investment and care they require.

These landscapes are essential to an ecosystem's resiliency and to protecting public health, and they are a proven combatant of climate change, regulating temperature and flooding. “We found that many organizations share similar motivations and challenges but don't have basic types of data to describe who is using the forest, the forest condition, and how it is changing over time,” said Clara Pregitzer, a Ph.D. candidate at F&ES, a conservation scientist at NAC, and co-author of the report.

KEEPING IT

LOCAL

Dozens of F&ES alums are working — often together — to make New Haven a stronger, more sustainable community.

BY KEVIN DENNEHY

Rebecca Gratz '99 M.E.M. sits in her office on New Haven's City Point, sorting through old photos of the neighborhood. Parts of the building where she now works date back to the 19th century, when this block overlooking New Haven Harbor was dotted with oyster companies and where shellfish were shucked in basements along the wharf. Back then locals used to race sharpies, a type of flat-bottomed sailboat believed to have originated here, off these piers.

Today, Gratz is the principal of The Sound School, a high school where students help run an aquaculture program and build wooden sailboats, including sharpies, on this same site. She recently co-launched a nonprofit to support the kinds of improvements to the school — and the waterfront — that the city simply can't afford: building renovations, a cultural museum, a return to oyster farming.

She never imagined that she would develop such a deep attachment to this city, let alone this neighborhood, when she arrived here from New York City to attend the Yale School of Forestry & Environmental Studies (F&ES) in 1996. But in those years as an F&ES student, Gratz made some life-changing friendships, met her first husband, and decided to invest herself in the

New Haven community. And she discovered The Sound School.

"We really loved the people we met and the community we were connected to," Gratz says, looking back. "We got married, bought a house. I started teaching here and loved it. Then you wake up 20 years later, *and here you are!*"

"I look around now and see all the things we worked on, and I can feel really proud of being part of that. It's a community where I've felt the things I have done have made a difference."

There are more than 5,100 living F&ES graduates, and they live in every corner of the planet, working in nearly every sector. Of those, more than 150 are living in this corner, in Greater New Haven, making it a stronger and more sustainable place. They're working in schools and nonprofits, in finance and government, in startups and academia. And they often work in partnership with each other and with the school where they earned their degrees.

We recently caught up with a few alums who call New Haven home or started businesses here. They share their stories of why they came here, why they decided to stay, the changes they've seen, and the part they've played in making that change.

LATHA SWAMY '16 M.E.M.

Food Systems Policy Director, City of New Haven

While she was a graduate student at F&ES, Latha Swamy '16 M.E.M. never felt a deep connection to New Haven. It's understandable; in addition to being involved in the F&ES community, her research focused on the intersection of health and environmental issues worldwide.

Before F&ES, Swamy was enrolled in an M.D./Ph.D. program in New York, where she'd encountered patients with chronic health problems, often exacerbated by environmental conditions. She remembers with fondness a man from the Philippines, for instance, who'd contracted an infection, likely the result of flooding caused by a local logging operation.

It occurred to her that, when it comes to protecting public health, addressing larger societal systems is just as urgent as treating individual patients.

That is why she came to Yale. As a graduate student, she studied global policy and tropical forestry issues. She attended international conferences, including two U.N. climate conferences, representing NGOs and national delegations. After graduating, she figured she'd end up in Washington, D.C., like so many other F&ES alums.

But a few months after graduation, she was recruited back to New Haven by Yale professor and the former President of Mexico,

Ernesto Zedillo, to join the Rockefeller Foundation Economic Council on Planetary Health, a new initiative of the Yale Center for the Study of Globalization. Swamy understood that the position was temporary and that she'd eventually have to find another full-time job. But in the meantime, she fell for New Haven in a way she hadn't as a student.

"I've grown fond of New Haven, and I have been probably the healthiest I've ever been here, the most fulfilled that I've ever felt in any place I've lived," she says.

Living in New Haven as a non-student, she got to know people "outside of the Yale bubble" who are involved in important work across the city. She became active with the

Community Leadership Program, where she met other young, energetic leaders — including Erik Clemons from the Connecticut Center for Arts and Technology and Karen DuBois-Walton of the New Haven Housing Authority — and immersed herself in local issues, including attending meetings of the New Haven Food Policy Council.

When the city posted an opening for its director of food systems, it didn't immediately occur to Swamy that it might be a good fit for her. But after some thought, she began to view it as an opportunity to confront health challenges at the local level. "I had the systems level focus," she said. "So I was excited to apply that on the municipal level, where the real work is done."

Since starting the position last fall, Swamy has dug into issues at every level of the city's large and complex food system. Working with a range of groups and individuals, she's tackling big questions, such as where the city gets its food, how it can promote a more vibrant and healthy commercial food sector, and how the community can assure that all residents have access to healthy food.

According to CARE and the New Haven Food Policy Council, 22 percent of the city's residents are "food insecure," meaning they don't have enough food or money to buy food, compared with about 12 percent statewide. The problem is even worse in underserved neighborhoods such as Newhallville and the Hill, Swamy says.

One of her priorities is addressing the underlying causes by promoting economic development, livable wages, and workers' rights rather than simply funding short-term solutions. "It's important to make sure there's a social safety net, where there's food for people who really need it," she said. "But by focusing all efforts on food pantries and soup kitchens, you're not really addressing the root causes. We need a 'both-and' approach."

She's also working to develop a community food systems "hub" that, among other goals, might streamline the work of dozens of environment- and justice-related nonprofit groups in the city and promote municipal and state policies that support these initiatives.

"I have a vision of staying here for quite a while, so I'd really like to see change happen across the food system," Swamy says. "Ultimately I want to support New Haven residents in propping up a just, equitable, and sustainable food system for everyone. I just hope I can do this position justice."

MATTHEW GARRETT

ANNA PICKETT '10 M.E.Sc.

Development & Outreach Manager, Urban Resources Initiative

For Anna Pickett '10 M.E.Sc. and Casey Pickett '10 M.E.M./M.B.A., there was always something familiar about New Haven.

As undergraduates at Oberlin College, a liberal arts school in Oberlin, Ohio, where they met, they'd been involved in efforts to build bridges between the school and the larger community — a relationship that could, at times, be tense. In New Haven, where they both enrolled at F&ES in 2008, they saw opportunities to perform similar roles for Yale and its host city.

"We loved the city," Anna Pickett says. "New Haven's full of fun activities and creative people working hard to make it better. But we'd always planned to settle near Casey's hometown in Vermont." She says that one factor more than any other made settling here attractive: a tight cohort of friends they'd formed while they were students at F&ES. To have children in their new hometown, they decided, that group would be critical.

"We were pretty open about it," she says. "Before we bought our house we checked in with everyone — 'Are you committed to staying?' Because none of us have family close by to help us with the kids. We really rely on each other."

At least seven couples from the 2008–2014 graduating classes still call New Haven home, and over the past decade they've coalesced into a sort of second family. As the couples began having children, they created a family cooperative to share childcare and watch each other's kids in cases of illness or business travel. They even vacation together.

Meanwhile, Anna has played a role in strengthening the relationship between Yale and the city as the development and outreach manager for the Urban Resources Initiative (URI), an F&ES-based nonprofit partnership that engages in community forestry activities throughout New Haven. (Casey is director of the Yale Carbon Charge Project, a university-wide carbon pricing initiative.)

URI works with city groups and community leaders "to replant, restore, and reclaim" the urban environment,



Anna Pickett, front, with her two sons at a Yale tree planting.

responding to challenges identified by local residents and collaborating with them on solutions. Anna has gotten to know every corner of her adopted hometown, working with neighbors to create more beautiful and healthy spaces across the city, including garden projects, tree plantings, and field work in neighborhoods citywide.

She also became a lead organizer of Rock to Rock, an annual citywide bike event that has raised over \$1.4 million for more than two dozen nonprofits doing environmental work.

And she's been able to share the connection to the city with her two sons, 8 and 6. "They like seeing me drive a truck through town," she says. "And they like to help plant trees."

When emerald ash borers killed 20 ash trees on the Picketts' street a couple of years ago, URI GreenSkills teams planted new trees up and down the street; the two boys helped bake cookies for the teams and brought them water. "And now we have all these little baby trees," Anna says. "It feels very hopeful."

COURTESY OF ANNA PICKETT

YONG ZHAO '08 M.E.Sc., '15 M.Phil.

Co-Founder and Co-Owner, Junzi Kitchen

For Yong Zhao '08 M.E.Sc., '15 M.Phil., New Haven was his first taste of the United States. When he arrived on the Yale campus in 2006, from northern China, he wasn't sure what kind of career he wanted to pursue, but he was eager to open himself up to new worlds.

Although he knew he wanted to tackle environmental challenges, the idea of getting involved in politics back home in China seemed risky and, after studying science for several years, he wasn't sure he had a passion for a career in research.

The idea of launching a startup, however, *did* stoke his passions. In New Haven he had a vision for the kind of business that might make sense, for the niche he might be able to fill.

As a graduate student, Zhao lived in an apartment above the Great Wall Restaurant on Whitney Avenue. The owner of the restaurant, who was also his landlord, mentioned to him often that he'd never be able to retire because his children weren't interested in taking over the family business. This reflected a generational shift Zhao had observed, as fewer and fewer young Chinese people were willing to emigrate to the U.S. to work in similar traditional "Americanized" Chinese restaurants.

"When I saw this, I thought, 'Oh, this is going to happen to all of these restaurants,' and that's a \$20 billion market," he said recently. "I thought we needed to create a new model for this, to change the way casual Chinese restaurants work."

Zhao and a group of friends — including classmate Wanting Zhang '11 M.E.Sc., to whom he is now married — decided there was an opportunity to "Chinese-ify" the popular American fast-casual format; the group, which included Ming Bai '13 M.F.A. and Lucas Sin '15 B.S., decided to offer food from northern China that was simple, healthy, and tasty.

Their first restaurant, Junzi Kitchen, opened on Broadway in New Haven in the fall of 2015.

As Zhao saw it, the potential market was huge; most Chinese restaurants in the U.S., he said, have followed an old-fashioned mom-and-pop shop model and are usually unable to establish a cohesive brand. He and his team wanted Junzi to be something much different. They describe it as a "modern" Chinese restaurant that specializes in northern Chinese-style noodle dishes and bings, a type of flour wrap that has been compared to crêpes or flatbread.

While developing the business plan, the group worked with the Yale Entrepreneurial Institute, which helped them hone the idea, examine different business models, and develop a brand. ("There are so many Yalies on the team, we've been called the most highly educated Chinese restaurant startup ever," Zhao said.)

Zhao envisions nothing less than establishing "one of the most recognized Chinese brands in the U.S." And they're off to a good start: They recently launched their fourth restaurant, in midtown Manhattan. They've raised more than \$5 million from investors — including some of the world's most influential hospitality leaders — and want to raise another \$12 million by the end of the year.

They started in New Haven because it was a city they'd come to know and enjoy. Working on the first restaurant helped them get outside the Yale community to get to know the "real" America. "It gave us new perspectives on the different sides of America, about the complexity of our society," Zhao said. "For us, getting to understand the real world was important."

He added, "If we can utilize our food tradition to provide healthier, more thoughtful, everyday foods for people, that's our contribution."



Yong Zhao, standing, with Lucas Sin at the New Haven restaurant.

COURTESY OF YONG ZHAO

JOANNE SCIULLI '96 M.E.S.

Founder/Executive Director, Solar Youth

Looking back, Joanne Sciulli '96 M.E.S. can't pinpoint exactly where her interest in environmental issues came from. She didn't come from an "outdoorsy" family, and she wasn't the type to join the high school environmental club.

But by the time she was a college undergraduate in the early 1990s, the boundaries of what was considered environmentalism were expanding. Researchers had started to show the link between environmental degradation and poverty, and that poorer neighborhoods tend to pay a higher price for society's pollution.

At the time, Sciulli was at Barnard College in New York City, where there were emerging unsettling case studies of what would become known as environmental justice. There was, for instance, a waste sewage plant originally proposed for the Upper West Side that was moved instead to the African-American neighborhood of West Harlem. And there were growing tensions about where city leaders were placing bus depots — and the emissions from idling buses that come with them.

Sciulli made the topic the subject of her senior thesis, poring through early research on the relationship between race and the environment and getting to know the New York leaders who were fighting for more just policies. It also steered her to Yale.

As she began to search for her niche in the environmental justice field, she found there was not a pathway for those interested in studying it. She was going to have to create one herself.

At Yale, Sciulli found her answers in the community. Working for the New Haven Ecology Project, a nonprofit that promotes sustainable environmental practices, she surveyed residents about a proposed urban farm on a 20-acre piece of land near West Rock (which would later become Common Ground High School). During an internship, she helped lead a summer camp program at the West Rock Nature Center, which introduced New Haven kids to nature.

"Every day we had kids from all over the city hike up that hill and come to camp," she remembers. "That's where it really clicked for me: This was *fun*. I *liked* doing this."

In 1997, Sciulli received a social entrepreneurship fellowship from Echoing Green, a New York-based organization that supports emerging leaders. That enabled her to pilot a new project for after-school and summer programs. "Building on

the relationships I'd created in the community — particularly with young people — I piloted this initiative that gave kids something to do when they weren't in school — something that was safe, productive, and supported their development," she says. "This was the niche I was looking to fill."

In 2000, that initiative became Solar Youth, a nonprofit that introduces children to the environment in their backyard, helps them identify challenges, and supports them as they develop solutions. Sciulli has served as executive director since its founding.

The environment, she says, became the context for what was really needed: creating opportunities and support for young people to develop a sense of self and learn valuable skills. "The most important thing I wanted to achieve was convincing these kids that they are problem-solvers," says Sciulli. "Everyone has the capacity to look at the world and see what is wrong or broken, and everyone has the power to think through what to do about it and take action."

Over nearly two decades, Solar Youth has served more than 3,500 children ages 4 to 18. Participants have led river cleanups and beautification efforts, public gardens and flower plantings. But they've also initiated partnerships to address the rising population of feral cats, and petitions that encourage residents to take a "kindness pledge" in order to reduce neighborhood violence.

Like many nonprofits, there have been financial challenges, particularly in the face of a struggling state economy and a proliferation of environment-related efforts. But year by year, Solar Youth measures its successes not by the outcomes of child-led initiatives but by what the kids get out of the process. They've built a community by creating programs that bring people together — and empowering kids to address challenges that *they* have identified.

"That's one of the reasons we've stuck around despite the challenges of keeping a small organization around without personal or political access to a lot of resources, which is often how nonprofits exist," Sciulli says. "Now, I would love to be one of those, but we haven't built that yet. *Yet.*"



Joanne Sciulli, back center, with a group of Solar Youth staff

JOANNE WILCOX

ADRIAN HOROTAN '10 M.E.M.

General Partner, Safer Made

Growing up in communist Romania, in a region polluted by non-ferrous metal mining, Adrian Horotan never thought you could do much about such environmental challenges unless you wanted to work for the government.

After coming to the U.S. in the early 2000s, he had a revelation: Of course you can!

He'd come to New Haven as a "tag-along." His wife, Anastasia O'Rourke '09 Ph.D., was completing her doctorate at F&ES. For a few years he worked in corporate finance and investment banking. But on the side he attended conferences with Anastasia and closely read her thesis work.

"I began to see in this world of early-stage green finance and renewable energy that maybe I could do something there," he said.

Horotan decided to apply to the F&ES master's program in 2008, with the idea of focusing on that nexus of finance and the environment. He reveled in being on a campus where he could take courses or connect with leading thinkers in their field — William Nordhaus, Marian Chertow, Paul Anastas, Andrew Metrick — and where



he had support and space for independent study projects.

And he came to really like New Haven. Early on, he and Anastasia, like many F&ES students, lived in East Rock. They biked around a lot, got to know the different neighborhoods, and developed a close group of friends (including Anna and Casey Pickett). They found New Haven to be a wonderfully open and vibrant community.

"It seemed to me an ideal-sized city, with an ideal distribution of things, with the university," he said. "It's got a bit of everything and just enough. As you dig deeper there's even more under the crust. And as you dig deeper still, there are even more good things."

There was never a moment when the couple officially decided to stick around. It just kind of happened, as it did for many of their friends. They've had two children, who are now 9 and 7. Anastasia is an environmental consultant. And Adrian began a career in environment-related venture funding.

After spending a few years with Elm Street Ventures, he co-launched his own small fund, Safer Made, which invests in projects that bring safer products and technologies to market, including those that use safer chemicals in products and manufacturing. Adrian travels around the world, meeting 100 to 150 different business teams each year. So far, Safer Made has invested in three of those projects (Ecologic Brands, Repurpose, and Mimikai), but expects to invest in another 10 or so. He also continues to stay involved with F&ES and the Yale entrepreneurial community by mentoring teams of budding entrepreneurs and helping them develop their ideas.

"The way I got involved with Safer Made is through a network that I built while I was here at Yale," Horotan says. "It started with a friend, Geoff Eisenberg, who was also a tag-along spouse [Erin Wirpsa Eisenberg '09 M.B.A.], with whom I spent many nights talking about environment and finance."

"When we started raising our fund a few years ago, we were a little bit ahead of the curve, but at this point it's taking off. We see a lot of demand for safer products from people; we see many brands winning with a message of safety and sustainability; and we also see interesting and innovative ideas from smart, driven entrepreneurs who want to make something where there was nothing before. It's more than we expected or hoped."

MATTHEW GARRETT

REBECCA GRATZ '99 M.E.M.

Principal, The Sound School

Rebecca Gratz, The Sound School principal, was an environmental educator before she came to Yale. She decided a degree from F&ES would help take her career to the next level. She figured that she'd teach for a few years before becoming director of environmental education somewhere.

After completing her master's degree, she stayed in New Haven for an extra year to finish her teaching certification while also teaching at The Sound School. (She'd never known about the school previously, but the person who placed student teachers thought it would be a good match for someone from F&ES.)

Opened in 1981, the school prepares students for college and careers in a maritime-focused environment. As one of 19 Agricultural Science and Technology Education centers in the state, it serves more than 340 students from 25 school districts. Students learn how to build and maintain wooden boats, operate motor boats, and manage a full-scale aquaculture program.

In the labs, the students help grow lobsters and oysters, barramundi, coral, catfish, and many other species. Students raise more than 1.25 million oyster seeds, growing them to a size of about 3 millimeters, which are then sold to local oyster farmers. "The students learn a lot by doing this," Gratz says. "They're learning how to maintain fish production, collect scientific data, and then crunch the data. It's the application of learning that makes it stick, which is why this school is so important."

The students also conduct original research — often in partnership with university, private, and state partners — including projects on the impact of human actions on the environment. And they're becoming environmental advocates, lobbying politicians for smarter environmental policies and for waterfront funding.

"Yes, it's great that we build boats, that we grow fish, and that our kids are doing real research," Gratz says.

MATTHEW GARRETT



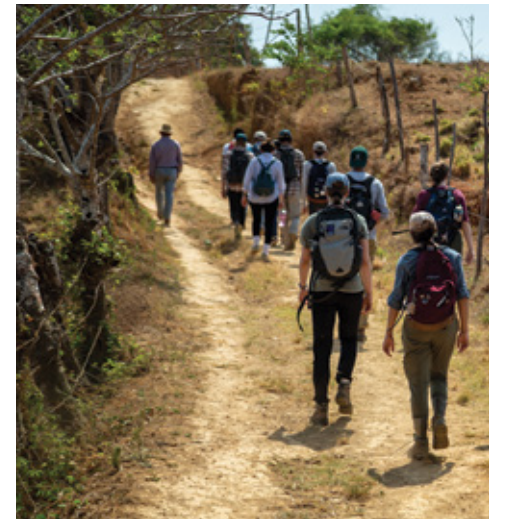
"But they're being empowered to believe that they can make a difference and can do things that can change the local system, change our local environment and our community.

"This school inspires me in so many ways that are related to why I went into environmental studies in the first place," she added. "I've been here so long it's part of who I am, and I have embedded myself in what we do and how we think." ❀

People and Landscapes

During a field trip to the U.S. South this spring, students got a taste of the diversity of the region's forests — including the longleaf pine savanna of the Florida panhandle and flooded cypress swamps.

Another group traveled to Panama, right, where they learned about the ecology, how and why these systems have changed over time, and the cultural and social factors that shape these changes. The trip was part of a seminar co-taught by Amity Doolittle, a senior lecturer, and Eva Garen, director of the Environmental Leadership and Training Initiative (ELTI).



COURTESY OF A.J. HUDSON AND PERRY LEUNG

COURTESY OF EVA GAREN AND ELI WITTUM

A POST-COAL FUTURE FOR APPALACHIA

BY ALISON STINE

Nathan Hall '17 M.E.M./M.B.A. answers the phone from his car.

He's traveling from Kentucky, where he had to see a farmer about a tractor, to West Virginia, where he's meeting with an agriculture nonprofit. It's a typical day in a life where there are no typical days.

Like many in Appalachia, Hall has had to forge his own path. For many years that journey has been driven by a desire to push his native region toward a more sustainable, post-coal future. His latest venture, Pine Mountain Remedies — which he co-founded last year — is a CBD hemp operation that provides economic opportunities for central Appalachian farmers.

“We want to be a part of the silver buckshot that's going to hopefully transform this region,” Hall told *The New York Times* in 2016, describing his work.

The idea that no one thing will save Appalachia — and that the wide, diverse, and often misunderstood region doesn't need saving, it just needs more opportunities — is important to Hall. A ninth-generation Appalachian, he grew up in the coalfields of eastern Kentucky in a town of 200 people where strip mining was prevalent.

“Growing up, I spent a decent amount of time in the woods and in those strip-mined lands ... squirrel hunting in the woods and bird hunting on reclaimed strip mines,” he said. “So from an early age, I was all over those kinds of landscapes.”

He left the region at 18 and ended up in Louisville, where he helped develop community gardens and worked at a community center, but eventually returned home. For a while he worked as an environmental activist, but frustration with some aspects of the activism community — and the need to earn more money — led him in the opposite direction: Hall began to work as an

underground coal miner. “I could make pretty good money as a coal miner and save up and eventually start a sustainable agriculture and energy business,” he said.

The money, however, wasn't as good as Hall hoped. And his family wanted him to get out of the field. “My grandparents especially were begging me to get out of the mines because they thought I was going to get killed.”

So at 23, Hall enrolled at Berea College, located just south of Lexington. Four years later, he received a fellowship from the Watson Foundation that allowed him to spend a year visiting regions with economic and historic parallels to Appalachia — including India and western and eastern Europe. He returned home with a commitment to restore former mine lands.

Before heading back home, however, he decided to come to Yale.

As a graduate student at F&ES,

Hall continued to explore strategies to achieve a more ecologically and economically sustainable future for Appalachia, including different entrepreneurship projects and the development of innovative land ownership and management structures.

In the summer of 2015, between his first and second years, he and a friend were invited by a startup company to grow hemp on a reclaimed mining site. At the time, he says, there wasn't nearly as much awareness about CBD hemp production as there is today. While that startup eventually folded, he turned back to CBD hemp when he and a partner formed Pine Mountain Remedies.

Today the company is cultivating several acres of CBD hemp, producing dried floral material that will be sold to processors. Future plans include processing the products

themselves into CBD wax and oil, which are commonly marketed to consumers as health remedies for sleep disorders and anxiety.

CBD, which is legal in all 50 states, is made from hemp, a member of the cannabis family. But it contains less than 0.3 percent tetrahydrocannabinol, or THC, the main psychoactive in marijuana, so it doesn't produce a high.

Hall and his partner couldn't believe the growing demand for CBD. And with its protective, wooded hills that help prevent cross-pollination contamination, Appalachia was the natural spot to cultivate hemp. Economic conditions also make it an increasingly viable opportunity for local farmers. The 2014 Farm Bill permitted certain states, including Kentucky, to grow hemp for the first time in decades. David Williams, an agronomist at the University of Kentucky, told West Virginia Public Broadcasting that Kentucky now leads the nation in industrial hemp research. In West Virginia, the number of farmers permitted to grow hemp has doubled in the past year alone.

CBD hemp is not a cure-all for Appalachia. In some cases, farmers encounter confusion and community resistance; some mistake the crop for marijuana. And farmers are heavily regulated and licensed by their state. Still, Hall calls it “the best option for this region, at least for now,” simply because the margins are just so much higher than for any other potential crop.

People talk about what's going to replace coal as the economic driver of the Appalachian region, Hall says. “Coal has this kind of outsized place in our minds. It carries more weight in our psyche than it does in reality. [But] those mining jobs haven't been a central part of Appalachian economies for a long time.”

Growing CBD hemp, he says, is a logical alternative. “The people here can't just easily

COURTESY OF PINE MOUNTAIN REMEDIES



The steep, forested hills of Appalachia protect CBD hemp (top) from wind-blown pollen. Co-founder Nathan Hall (bottom) is a ninth-generation Appalachian.

switch to something else,” he said. “They are more accustomed to working with their hands, to working with tools, working with equipment, and in a way, working with the earth itself. Heck, mining is working with the earth. It's different from agriculture, but a lot of the skill sets, knowledge, and equipment are very transferable.”

Hall's connection to his home, his empathy for the people, and his commitment to organic and sustainable agriculture makes his work unique. It is also raising critical issues in the ongoing narrative of Appalachia.

“Appalachia has a pretty rich and diverse history — and it's more than just stories about the decline of the coal industry and stories of addiction,” he said. “It's so easy to just tell those same old stories.” ❖

MAKING THE INVISIBLE VISIBLE

BY JOSH ANUSEWICZ

For Michael Mendez, environmental justice isn't just his field of expertise. It's part of who he is.

Michael Mendez grew up in a low-income immigrant community in California's San Fernando Valley, the son of a Mexican father and a Mexican-American mother whose family has lived in the Golden State for more than a century. In his neighborhood, you were more likely to see a landfill than a public park. Being raised around what he calls "environmental degradation" — yet just miles from the glitzy Hollywood Hills — pushed him toward trying to understand the cause of these inequities and led him to a career of fighting for environmental justice through public policy and urban planning.

But it was on his professional path that he discovered inequities of a different kind in the environmental field — issues of diversity, which he is now also facing head on as an academic.

"The environmental field is a very white, male-dominated field,"

said Mendez. "I want to open up spaces and dialogues to talk about the unique impacts and concerns within these communities — whether it be about race, gender, sexual orientation. I want to change the face of the teachers so people like me from communities of color can see themselves reflected in academia. I want students from different communities welcomed into the classroom and into the field so we can properly train a diverse generation of environmental leaders."

Putting his words into action over the past three years, Mendez served as a James & Mary Pinchot Fellow in Sustainability Studies at F&ES. The program recruits emerging scholars and early-career faculty who will enrich the quality of the School's scholarship and contribute to the diversification of the field of environmental and sustainability studies.

Mendez entered F&ES with more than a decade of experience in California's public and private sectors working as a consultant and lobbyist,

as well as stints as vice chair of the Sacramento City Planning Commission and a senior legislative aide in the California State Assembly. It was during his time in policymaking that his interest in research began to take shape — the relationships between political institutions and businesses with the power to create policy and participate in

decision-making and those affected by these decisions, who aren't able to take part in the process.

"I had a strong understanding of how government and business come together to understand issues around the environment — I got to see that firsthand," he said. "But I wanted to better understand how people and places were impacted and how power works in the context of the environment."

At F&ES, Mendez taught two courses on environmental justice, one as a practicum and the other a reflective practice seminar. In the practicum, students worked with clients from the California Air Resources Board to focus on the implementation of environmental justice. Mendez said he felt that, like many courses at F&ES, the class was "very applied — we're really a professional school."

The seminar, he said, opened up new and diverse conversations about issues of race, sexuality, and gender to see how they intersected with professional practice. Students questioned their positionality: What are our values, what are our methods, and what are the unintended consequences?

"Students talked openly and candidly about their feelings and experiences. They really appreciated that opportunity," Mendez said.

Mendez also introduced these conversations to the broader Yale community. He brought F&ES students to the Yale Art Gallery to explore how conceptualizations of nature can be interpreted differently based on the viewer — who is represented in the work, who is left out, what nature means to society. He organized events on the impact of wildfires on undocumented immigrants in California and how climate change affects



At Yale, Michael Mendez found unique ways to foster conversations around race, sexuality, and gender, including bringing students to the Yale Art Gallery to discuss representation in art.

the LGBTQ community.

Each of those events created far-reaching change. The wildfire discussion caught the attention of California Gov. Gavin Newsom, who included key findings from F&ES into a \$50 million disaster preparedness grant that covers undocumented immigrants. "Queer and Present Danger in the Context of Climate Change"

raised awareness of the marginalization the LGBTQ community faces during natural disasters — isolation, blame from extreme religious groups, unwelcoming emergency shelters, and the lack of recognition of same-gender families. Mendez is now working with Leo Goldsmith '20 M.E.M., who pitched the idea for the event, on a journal article about these risks.

"He has created a space to open these conversations that normally don't occur at F&ES but so desperately need to happen," said Goldsmith, a queer, transgender student. "Other students came up to me after the event and said they had never considered the connection and wanted to know more."

"I want students to feel welcome," said Mendez. "Make the invisible visible."

Even though his tenure at F&ES has ended, Mendez's message will still reach a wide audience. This fall, his book "Climate Change from the Streets: How Conflict and Collaboration Strengthen the Environmental Justice Movement" will be released, which will dive into if and how governments are considering the needs of the most socially vulnerable populations in the face of climate change. Starting next semester, Mendez will be an assistant professor of environmental planning and policy at UC Irvine's School of Social Ecology, and he has been chosen to serve on the board of Environmental Change in Society at The National Academies of Sciences, Engineering, and Medicine. He is currently the board's youngest member and one of two people of color.

His experience at F&ES has been a rewarding one. "I've seen maturity and professionalism within my own research," Mendez said, "and I've gone from a California-focused scholar and researcher to someone who can move to a national platform. I'm grateful for the opportunity." ♣

A NEW INITIATIVE IS PROMOTING PRINCIPLES OF GREEN CHEMISTRY IN DEVELOPING ECONOMIES, FROM SERBIA TO SRI LANKA.

IT TAKES

Tomislav Stolar was familiar with the principles of green chemistry. More to the point, his work typifies green chemistry. As a doctoral student at Croatia's Ruđer Bošković Institute, he's studying ways to reduce the amounts of solvents needed in industrial processes.

But as for how those principles — or his own research — might inspire a new business? He admits he hadn't given that as much thought. Then, last December, he was invited to attend a workshop in Belgrade, Serbia. Suddenly the possibilities began to click.

The training was led by the Yale Center for Green Chemistry and Green Engineering (YCGCGE) — a multidisciplinary center based at F&ES, the Yale School of Arts and Sciences, and the Yale School of Engineering & Applied Science — and Serbia's National Center for Cleaner Production. It convened individuals interested in green chemistry, a growing field that aims to make chemistry and related processes cleaner and safer through scientific design. But the room wasn't filled just with scientists and academics. There were also leaders from industry and business entrepreneurs, government officials and nonprofit organizations.



SERBIA

They discussed the principles of green chemistry but also how those principles are already being applied around the world and addressing local challenges. And they examined future opportunities.

Stolar, who studies a class of synthetic powders known as metal-organic frameworks, envisioned industrial applications — using carbon dioxide as a reagent to produce methanol



EGYPT

in a more sustainable way, for example.

"I now feel empowered to make a real impact in my community," he said a few days later. "Both in my scientific research now and also, perhaps in the future, in some business opportunities."

Which, of course, was the point. For all of the demonstrated performance of green chemistry in the developed world, it will take a network to inspire and achieve a new generation of cleaner products, processes, and systems in the world's emerging economies, says Paul Anastas, a professor at Yale and director of YCGCGE. Or, as he puts it, an "innovation ecosystem."

The Belgrade workshop was part of the Global Green Chemistry Initiative, a private-public program led by the United Nations

Industrial Development Organization (UNIDO), which has tapped into expertise from Yale and other international organizations to cultivate these "ecosystems."

In addition to Serbia, the initiative has led workshops in Brazil, Colombia, Sri Lanka, Egypt, and South Africa. At each site, green chemistry experts from Yale, McGill University, and other institutions introduced principles of the emerging field, discussed how they're already being applied in the region, and examined future opportunities.

"Our goal is to disseminate green chemistry globally and to empower the next generation of chemists," said Karolina Mellor, a YCGCGE program manager who created the framework and materials and co-facilitated the six events. "Workshops like these are not just about delivering content. They give opportunities for like-minded people to come together to build a community around green chemistry."

In 1998, Anastas co-authored a book that first introduced the 12 principles of green chemistry, an emerging field he'd been promoting at the U.S. Environmental Protection Agency.

Among other charges, it called for innovations that create new performance and function while at the same time preventing waste and reducing or eliminating the use of hazardous chemicals.

Two decades later, the principles have infiltrated nearly every industrial sector — from the production of food and energy to the pharmaceutical and cosmetics sectors — and are taught at universities across the world.

Much of that growth, however, has occurred in the U.S. and western Europe, Mellor says. For the

UNIDO initiative, leaders in the field focused on promoting green chemistry in developing countries. That way, Yale leaders say, there's an opportunity to promote green principles within emerging industries — to leap frog to sustainable methods before they adopt the older, polluting technologies that have become commonplace in the industrialized world.

"We wanted to target countries where they are increasing their chemical production and building new infrastructure, building new companies, developing new entrepreneurs," said Philip Coish, another program manager for YCGCGE. "We wanted to get in early and show them the opportunities presented by green chemistry

success stories, and explored potential direction for future innovation. Participants specifically addressed the thorny environmental challenges faced in their own countries and regions. In Serbia, participants discussed the possibility of using microbes to clean up pollution caused by the mining industry. In Colombia, a McGill researcher shared methods to reduce the pollution that results from the cultivation of coffee.

In some cases there was recognition that the potential benefits of green chemistry might include more than addressing environmental



BRAZIL

What we're trying to show is what the potential benefits are and how they outweigh the risks."

In the end, the initiative will generate a roadmap for promoting green chemistry solutions anywhere, including a compendium of technologies that will be shared with the growing global community of professionals interested in green chemistry. However, those resources, and these workshops, were never intended to lay out a path forward or to prescribe a one-size-fits-all approach to achieving sustainability. It's all about giving countries and their leaders

A NETWORK

BY KEVIN DENNEHY

and green engineering. At the heart of green chemistry is this notion of 'benign by design,' in which you develop technologies that are clean and less wasteful and which inherently remove the need to deploy end-of-pipe technologies [which remove already formed contaminants from the air, water, waste, or products]. So if you're developing a technology that doesn't pollute and is economically viable — and helps society — then that's a better solution than what came before."

During the workshops, instructors shared the principles of green chemistry, highlighted

threats — they could also provide badly needed economic development.

There's another hurdle, Anastas says, which must be overcome regardless of the country: intellectual inertia.

"There's no shortage of environmental or economic challenges that societies face; this country may not have reliable power while that one might have water stresses or lack of connectivity to the internet," he said. "But those types of challenges are usually less important than capturing peoples' imagination about what's possible and what benefits can come from these innovative ideas.



SOUTH AFRICA

the tools to create that pathway themselves.

"It's important to know that we're just catalysts," Mellor said. "We're not going in there to tell them what to do. We're showing them what opportunities exist, and it's really up to them what they want to do with that knowledge."

For Stolar, the Croatian researcher, perhaps the most important thing to come out of this process is that it changes people's mindsets. "People don't realize," he said, "but we should be spreading the message that things can be done in a more sustainable way. And that it can be beneficial for all three components — the environment, society, and the economy — and doesn't have to be one at the expense of another." ❁



IN DEFENSE OF THE PREDATOR



How Wolves Killing Moose Can Help in the Battle Against Climate Change

BY JOSH ANUSEWICZ

Ninety percent of Canada's 37 million residents live within roughly 100 miles of the U.S. border — a staggering figure for a country that's more than 3.8 million square miles in size, the second largest in the world.

The reason for the peculiar population density is that most of Canada — 1.5 billion acres, to be exact — is covered by boreal forest, stretching from the Maritimes on the Atlantic Ocean all the way to the border of Alaska in Yukon Territory. It's an endless sprawl of conifers, thousands of lakes and ponds and marshy bogs, leaving much of this enormous forest virtually undisturbed and uninhabitable.

Uninhabitable to humans, that is. Canada's boreal forest is one of North America's most pristine wildlife habitats, providing a home for a variety of fish, birds, and mammals large and small to thrive. But it's the thriving of one mammal, the venerable moose, that's put a spotlight on the razor's edge this ecosystem currently sits on. And why academics, environmentalists, business leaders, and politicians are all paying close attention to what happens next.

PHOTO: ISTOCKPHOTO.COM/MIRCEAX, ILLUSTRATION: SHUTTERSTOCK.COM/BARASHKOVA NATALIA



The 7,800-acre Yale-Myers Forest is considerably smaller than Canada’s boreal forest, but it suits Oswald Schmitz just fine. Schmitz, Oastler Professor of Population and Community Ecology at F&ES, studies the link between two important components of natural systems: biodiversity and ecosystem services.

He explains it in plainer terms: “The theme of my research has been to understand how the diversity of predators — from insects all the way up to mammals — shape their prey communities and what the prey communities eat in terms of vegetation. I then conduct experimental research to understand how they fit together and the mechanisms that determine how they interact.”

For that, Yale-Myers is perfect, allowing for more exacting experiments and detailed measurements. Schmitz has used this outdoor laboratory for the better part of 17 years to conduct many of his experiments on arthropods, particularly spiders, and the role their predatory habits play within the ecosystem.

His research has yielded fascinating results, extending beyond what many have understood of predator-prey relationships. A three-year study completed in 2008 looked at the predatory habits of spiders and their grasshopper prey; Schmitz determined that spiders that actively hunt predictably alter the abundance of their herbivore prey. Alternatively, spiders that wait to ambush their prey trigger fear in grasshoppers, changing their foraging activity in a manner that reduces predation risk. The mere presence of spiders, he found, leads to a different “cascading effect” on the composition and abundance of plant species, in turn altering key ecosystem functions like production, decomposition, and nitrogen mineralization.

Schmitz built upon this research in 2013. He found that when plants weren’t being foraged by herbivores whose behavior was being altered,

they were growing faster and causing the ecosystem to store close to 40 percent more carbon. The presence of predators, he reasoned, promotes carbon cycling and nitrogen cycling that helps plants grow and keeps our air safe to breathe.

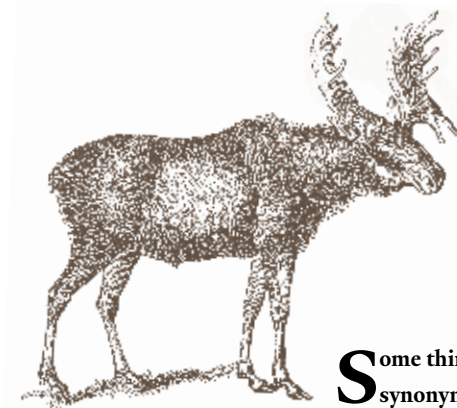
“The classic view in ecology has always been that a habitat will attract herbivores, and then predators will come and eat the herbivores,” Schmitz said. “What we’re seeing now is that predators are actually the ones building the habitat. They’re regulating what herbivores do and, in a sense, promoting habitat sustainability.”

In December 2018, Schmitz and a team of researchers upped the ante, scaling up their work to a landscape level. By using data from remote sensing in combination with on-the-ground sampling, they determined that the presence of wild animals in many ecosystems can trigger feedback effects that modify a landscape’s capacity to absorb, release, or transport carbon, increasing or decreasing rates of biogeochemical processes by as much as 250 percent. Animals and their behavior, the study found, must be considered when evaluating the carbon budget of a landscape.



These findings could prove critical as researchers evaluate the potential role ecosystems play in mitigating climate change. The carbon cycle — the exchange of carbon through the biosphere — has been greatly altered in recent decades as humans and their activities have become the primary movers of carbon by releasing harmful greenhouse gases into the atmosphere. Our oceans — which contain roughly 50 times more carbon than the atmosphere, according to the Marine Conservation Institute — are having to absorb more atmospheric carbon, creating higher water temperatures and transforming the chemistry of the water.

With no precedent for these scenarios, there is no definitive solution. But Schmitz believes Canada’s boreal forest might hold some clues for how animals — particularly predators — can make a difference.



Some things have become synonymous with Canada: politeness, hockey, maple syrup. Moose, too, would probably fit into that category.

Estimates put the number of moose in Canada at nearly 1 million, fanned out across almost all of the country’s provinces. They are enormous creatures — on average, moose stand well over 6 feet tall and can weigh more than 1,400 pounds, making them the largest land mammals in North America. That means a lot of mouths to feed, many times a day.

“Moose in high abundances are quite damaging,” said Schmitz. Moose feed heavily on woody vegetation throughout the boreal forest, favoring shoots and leaves from trees. This hinders the ability of plants to photosynthesize, reducing their ability to absorb carbon from the atmosphere. Furthermore, cold soil in the boreal forest makes for an

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The reason for that, Schmitz said, is because wolves also kill caribou, a highly threatened species and also culturally significant animal in Canada. Factors like oil and gas development and logging have forced moose to migrate across and into new landscapes to find food — landscapes that are home to caribou. As moose have expanded their territory, wolves have followed, with the caribou becoming collateral damage.

So, what to do? An article in the August 30, 2017, issue of *The New York Times* highlighted a study led by Robert Serrouya, a biologist at the University of Alberta, that monitored the three species in British Columbia for a decade. The findings of that study posited that by hunting moose, there would be fewer wolves and more caribou. Some conservation organizations and wildlife management agencies, Schmitz said, have advocated for cutting out the middleman and simply hunting wolves.

Eliminating the predator from the equation, however, could mean devastating consequences for the carbon cycle.

ideal carbon cycle, as plants not only absorb carbon to produce clean air, but the absorbed carbon gets stored underground, keeping it from escaping into the atmosphere. If this carbon cycle is undisturbed, Schmitz estimates that the entirety of Canada’s boreal forest ecosystem can store enough carbon each year to offset all of the country’s yearly fossil fuel emissions. (Canada is one of the 10 highest carbon emitters in the world.)

Efforts are now being made across Canada to control the moose population, almost entirely through recreational hunting. But little effort is being made to conserve the primary predator of moose, the wolf, which can exert important control over moose populations.

“This should be a win-win,” said Schmitz. “Not only could we conserve all of the animals and conserve biodiversity, we would maintain their functional roles and conserve the landscape’s entire ecosystem. This would protect that carbon cycle.

“Top predators are already disappearing at a rate faster than other species. Yet at the same time, we’re learning the profound importance they have on functioning ecosystems. Their loss could diminish opportunities of managing climate change in the future.”

“TOP PREDATORS ARE ALREADY DISAPPEARING AT A RATE FASTER THAN OTHER SPECIES. YET AT THE SAME TIME, WE’RE LEARNING THE PROFOUND IMPORTANCE THEY HAVE ON FUNCTIONING ECOSYSTEMS. THEIR LOSS COULD DIMINISH OPPORTUNITIES OF MANAGING CLIMATE CHANGE IN THE FUTURE.”



In late 2018, Kristy Barnes, a doctoral student at F&ES, had the opportunity to attend the North American Caribou Workshop in Ottawa, Ontario. The annual conference attracts representatives from academia, government, NGOs, business, and indigenous communities with the goal of teaching and learning about the endangered caribou.

Barnes, who works in Schmitz’s lab, has focused her studies on nutrient cycling within caribou populations. As populations decline, nutrients that caribou transfer with them as they migrate could be reduced within ecosystems. Exactly how much of these nutrients is transferred — and the effect a reduction would have — is entirely unknown.

Barnes attended the workshop to learn more about caribou, but one of her main takeaways was how contentious the animal has become. “Watching the industry side and the science side and the indigenous side try to communicate — there was a lot of tension,” said Barnes, who will be conducting field research on caribou on Newfoundland’s Fogo Island this summer.

Getting these different sides on the same page may be the hardest obstacle of all. As the oil, gas, and mining industries open up more of Canada’s landscape, they take away more of the caribou’s habitat. These early-stage forests attract more moose to feed, which in turn attracts more wolves, who have an easier time hunting moose and caribou in a more open area.

Environmentalists see a threatened species under siege but don’t consider carbon storage. Policies differ from province to province and region to region, making it difficult to create a unified strategy. Heels have been dug in.

“Oil and gas are focused on the ground, foresters think about the trees, policymakers don’t see the interconnected system,” Schmitz explained. “We’re not thinking about this coherently. Then something bad happens, and we say, ‘Oops, how do we fix it?’ We should be heading these problems off before they start.”

Schmitz hopes his research can be used to do just that. He has begun collaborating with F&ES faculty members Ben Cashore and Eli Fenichel to derive new ways to economically value these animals, their functional roles, and carbon cycling and to think through the complexity of it all to help policymakers be proactive. He is also beginning to collaborate with a colleague from the University of Montana to begin remote sensing animal movements across boreal landscapes to paint a clearer picture on nutrient transferring. He also works with students in his lab, including Barnes and Julia Monk, a Ph.D. student researching predator-prey relationships and carbon cycling in Argentina in order to expand the data beyond Yale-Myers and Canada’s boreal forest.

With climate change looming as the world’s foremost issue in the coming years, Schmitz says there is “quite a bit of urgency” attached to this research. And while balancing the relationship among moose, wolves, and caribou is not going to reverse years of damage caused by carbon emissions, avoiding yet another “oops” moment can only help to build a path toward a more sustainable ecosystem in the future. ♣

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COMMENCEMENT 2019



On Commencement Day, 157 members of the Class of 2019 joined a global network of F&ES alums that now numbers more than 5,000. The new class included 11 Ph.D. recipients and 146 master's graduates. Speaking to the graduates, F&ES Dean Indy Burke reminded them that they're launching their careers when policymakers are refusing to make environmental challenges a priority – and expertise itself is often dismissed. “We launch you into the world at a time when it is not clear that expertise is desired,” she said, “but at a time when your expertise is *badly* needed.”





Parting Thoughts from an F&ES Favorite

BY HANNAH PERAGINE '18

For more than a decade, Joanne DeBernardo has been the first face students see when they walk into Kroon Hall. On the cusp of retirement, the outgoing assistant dean of student services – or “F&ES Mom,” if you prefer – talked with *Canopy* about her impactful career and shared some advice for the F&ES community.

Students and alumni always speak of your genuine care for them. How did you come by that?

I treat people as I would want members of my family to be treated: with genuine concern and an understanding that our students are our customers. We don't refer to them as customers, but they are. They made sacrifices in their lives to come here for graduate school and to earn this degree, and we are part of helping them reach that goal.

That's earned you the title of “F&ES Mom.” How do you feel about that?

For a long time, as a professional, it didn't make me feel as valued and appreciated as I felt I should have been. But about five years ago, my church held an open session about joys and concerns. A gentleman stood up and said that he would like to thank all the moms in his life – his mother who raised him, his wife who raised his children, his boss, his teachers. That opened my eyes to what being the “F&ES Mom” really meant.

“I'm happy to be retiring, but it's bittersweet because I absolutely love F&ES.”

SAMARA BROCK



You've been a part of the lives of thousands of F&ES students during your time here. What advice and encouragement would you give them now?

Life offers us many different things, and we don't ever really know from one day to the next what is going to be there. What challenges are we going to face, and what crossroads will we come to? It is a matter of setting the correct priorities and living up to them.

I am a perfect example of that. In 1975, I graduated from college and became a high school teacher. Now, I'm retiring as an assistant dean at a graduate school at Yale. I never would have believed it.

What about future students?

You've decided to come to the best environmental school. I applaud you for the love of the work you are going to be doing and the excitement and enthusiasm you bring to it. I would encourage you to flourish here as part of this community and then go out and do great things.

What's the next chapter of your life?

[My husband] Frank and I will be in North Carolina. I'll be answering far fewer emails, decorating my new home, traveling, spending time with our adult children, and learning to play golf. I'm happy to be retiring, but it's bittersweet because I absolutely love F&ES. The school is going in great directions, and new energy is always good. ♣

READ THE FULL INTERVIEW ONLINE: yalef.es/debernardo



Mark Bagdon '73 says, "Still playing a lot of fiddle in both classical and traditional groups. Check us out on Reverbnation: Three Quarter North."

CLASS NOTES ☀ *Denotes a reunion class year. Reunion 2019 will be held October 11–13, 2019.*

51 **CLASS SECRETARY**
Peter Arnold, arnoldp@nccn.net

Peter Arnold writes: "With the passing of **Lester Bradford** in March, our class is now pared down to just four – **Don Page**, **Gerry Fitzgerald**, **Bob Curtis**, and myself. Lester's accomplishments in the fields of forestry and agroforestry are, in my opinion, the most outstanding of any of our class, indeed of all alumni. I was in touch with him via email in his last two years, fighting Parkinson's, and his good humor and cheer in the face of such adversity was inspiring. Bob Curtis lives in Olympia, retired from USFS. Don Page occasionally breaks radio silence, but I have not heard from him recently. Fitz abhors all things cyber, but we do trade letters. He lives alone in Rochester, New Hampshire. As for me, as I approach 95, I have not yet bagged my 2019 turkey, but I still have a couple of weeks, so they'd best beware!"

53 **CLASS SECRETARY**
Stanley Goodrich, slgmyg.good@quest.net

Eric Ellwood writes: "At age 96, I have unfortunately outlived most of my close relatives and friends and wonder if any of my surviving classmates will read this and contact me." Eric, **Peter Arnold '51** would love to get in touch!

56 **CLASS AGENT**
Patrick Duffy, pjduffy@shaw.ca

Patrick Duffy writes: "My great memories include the dean sending me to the manageress of the Yale Faculty Club on the Village Green to serve as night clerk for the year; with a garret room as compensation, a tuition scholarship, serving as president of the student body hosting speakers, arranging parties, and welcoming visitors to the school. The first two were Martha Hayne and Elizabeth Cushman from Vassar. This led

to Martha and me becoming an item for two years, taking in the Harvard-Yale Game in 1955, visiting Vermont, climbing in the Tetons, and meeting her family in Marin County, California. My second career in the U.S. Energy Information Administration was helped by Martha's husband, Lee Talbot, in D.C."

60 **CLASS SECRETARY**
John Hamner, jhamner1@bellsouth.net

Jon Liles writes: "After my stint in the Army Reserves, went to work with Union Camp in forest management for six years. In an attempt to get my wife out of the woods back to Atlanta, I joined her dad in the electrical contracting business. After a dozen years (seemed like two), Jo Ann (present wife of 43 years) started Liles Forest Management in Walterboro, South Carolina. Tried retiring at 70, but clients wouldn't let me – finally quit at age 75. Had hopes of woodworking in my shop and

fishing, but the stump holes and vines took over knees, hips, and back. Warning: Don't wait too late to quit. Now live on a creek bank just below Charleston, South Carolina."

64 **CLASS SECRETARY**
Seeking volunteers!

Stephen Hanover writes: "Springtime has again brought us to the province of Guangxi, China. Nanning is the capital. It is situated very near the Tropic of Cancer. High-speed trains – and there are plenty and they're clean – take us to view the mountainsides, which are dotted with tremendous plantations of eucalyptus. These skinny, tall trees are waving as to salute the competition for sunlight. The subtropic climate must be right for their survival and rapid growth. Where are you, classmates?"

70 **CLASS SECRETARY**
Whitney Beals, whitney.beals@gmail.com

John Bissonette writes: "Just had a new paper (letter to the editor) accepted by the *The Journal of Wildlife Management* titled 'Additional Thoughts on Rigor in Wildlife Science: Unappreciated Impediments.' Still work in my office every day except when traveling, even though retired in June 2012. Love to read the new papers and respond when necessary. Best to all my friends and colleagues. You are always welcome to stop by our house in Logan, Utah. Mary and I always love to see old friends."

71 **CLASS SECRETARY**
Harold Nygren, Tnygren@juno.com

Barry Bryan writes: "I am still working full time in Victoria for the British Columbia Ministry of Forest Lands and Natural Resource Operations, involved in negotiating compensation for holders of forest tenure harvesting rights that have been impacted by a government initiative such as a new park or treaty with a First Nation. My wife of 50 years, Gillian, and I are heavily committed to Kairos Prison Ministry International, volunteering for the last 15 years in men's and women's correction centers in Washington. We are very fortunate to have five of our six children living close to us here in Victoria and our sixth in Vancouver. So with four grandchildren and one on the way, our home is still very much action central!"

73 **CLASS SECRETARY**
Roy Deitchman, rdeitchman@verizon.net

Mark Bagdon writes: "In April 2017, I sold Novus Engineering and Bagdon Environmental to LaBella Associates, a multidisciplinary consulting firm based in Rochester, New York. It is great to have a firm behind us with people who can do pretty much anything we need. I am now the regional manager of our Albany office. May think about cutting back on work hours over the next several years. Still playing a lot of fiddle in both classical and traditional groups. Check us out on Reverbnation: Three Quarter North." (See photo on opposite page.)

Bob Cashel writes: "Another year almost down the drain! I am still teaching high school biology to a bunch of 14-year-old girls. As you can imagine, not many dull moments in the classroom, but it is very entertaining. Pretty good year on the coaching front, improved in swimming but struggling in golf. I think I will have to wait until next year to see any real improvements. Please let me know if you are going to the reunion, **Sam** and **Clyde!**"

Deborah Hill writes: "Greetings! There's a little new news in my life. While working in the Department of Forestry at the University of Kentucky, I bought a small farm in Frankfort, Kentucky, and have managed it for some 20 years. I have produced largely fruit crops there and have vended at the local farmers' market for the past four years during the summer. I was involved some 20 years ago with the issue of legalizing the growing of industrial hemp in Kentucky, where it had been a very successful crop at the time of World War II. Kentucky has been growing hemp for nearly 10 years now as a result of special dispensation, heavy lobbying, and well-organized research and development. Last year, Congress passed the new Farm Bill, which makes the production of industrial hemp legal throughout the U.S. And this year I am collaborating with a neighbor farmer to grow several acres of industrial hemp for the production of cannabinoids, one of the medicinal benefits of hemp, on my farm. A dream come true!"
(For more on hemp farming, check out the story on Nathan Hall '17, page 24!)

74 **CLASS SECRETARY**
R. Lautenschlager, rlautenschlager@mta.ca

Maggie Coon writes: "I'm loving life in the beautiful Methow Valley in rural eastern Washington. Here we have world-class Nordic skiing and proximity to North Cascades National

Park for summer recreation. Official retirement affords some time for play, though I spend a good deal of my time and energy as board chair for the Methow Valley Citizens Council. We are an environmental advocacy group working since 1976 on land, air, and water issues in our rural mountain valley. We're ground zero for impacts of climate change and are a microcosm of issues needing grassroots activism. Check us out at mvcitizens.org."

Katharine Preston writes: "My book, 'Field with a View: Reflections on Science and Faith in a Time of Climate Change,' was just published. Although it relates a personal journey, anyone who has experienced the wonder of ecological systems and struggles with the spiritual ramifications of what anthropogenic climate change is doing to those systems might find the book helpful. To order a print or e-book version, go to ionabooks.com."

75 **CLASS SECRETARY**
Hallie Metzger, hallie.metzger@rcn.com

F. Dominic Dottavio writes: "After 11 years as president of Tarleton State University, I will be stepping down on August 31, 2019. My plans include a sabbatical and then returning to teach a course on the stewardship of public lands and a first-year seminar in the Department of Wildlife, Sustainability, and Ecosystem Sciences. In recent years, I have been able to stay connected to my roots in the National Park Service as a chief scientist by serving as a founding member of the board of the Park Institute of America, housed at Duke University."

Alumni Association board member **Hallie Metzger** writes: "A giant thank you to my classmates for nominating me to run for the Alumni Advisory Board. It is awe-inspiring to work with dedicated F&ES alums from all classes. Let me know what issues you'd like to see addressed. I'm your rep!"

76 **CLASS SECRETARY**
John Lundquist, jlundquist@fs.fed.us

Philip Conkling writes: "Since stepping down from the Island Institute, which I founded and led for 30 years, I have started an environmental and nonprofit consulting group, conklingassociates.com. I have had an interesting mix of for-profit and nonprofit clients. After 30 years of nearly nonstop fundraising, I am pleasantly surprised by the simplicity of sending an invoice and having people send me money. What a concept!"



Sven Hultman, his wife, and a bunch of (other) beauties.

Sven Hultman writes: “After having developed and tested the concept of care dogs in Sweden for 10 years, my wife and I sold the care dog school two years ago. During those 10 years we managed to get the first national standard established for care dogs, ‘Care Dog Teams within Home Care for Elderly, Dementia Care, and Rehabilitation for Adults after Acquired Brain Injury: Requirements for Training.’ As far as we know, there is nothing like that in the American National Standards Institute or the global International Organization for Standardization. One of the breeds that is generally suitable as a care dog is the labradoodle, so we took up breeding as the first in Sweden. That has been so successful that we now have long waiting lines for our puppies. Full-time work! Puppies do not care about weekends. And the females don’t care about time of day to give birth; it almost seems they prefer to start late in the evening and be finished by five in the morning. It is great to have rewarding work at the age of 78! And every new litter is an adventure. So much fun to watch them grow from blind and helpless to courageous explorers of the world!”

John Paul McTague writes: “Perhaps I will see some classmates at the XXV International Union of Forest Research Organizations Congress in Curitiba, Brazil, during the first week of October 2019, where I will deliver a presentation in the Forest Inventory and Modeling Session. While semiretired, I’m engaged in research with the Plantation Management Research Cooperative at the University of Georgia and relatively busy in other consulting projects with my firm, Southern Cross Biometrics.” (John Paul, look out for **John Parrotta ’83!**)

Alan Poole writes: “Recently retired from the Cornell Lab of Ornithology, where I spent 12 years editing the Birds of North America life

history series, now digitized and available online. Just published a book on ospreys – ‘The Revival of a Global Raptor’ – with Johns Hopkins. Starting a new book on quetzals with Cornell, taking advantage of time I’m now spending in the highlands of southern Costa Rica each winter. Class of ’76ers (and all F&ESers) are encouraged to visit at the Las Cruces Biological Station (Organization for Tropical Studies).”

Eric See writes: “After 24 years of running my environmental consulting firm, I am shutting down my office and partially retiring, working out of my house. It’s been an interesting career, but I need a break and to travel more than I have been able to do in the past.”

77 CLASS SECRETARY
James Guldin, jguldin@prodigy.net

Jamie Mackie writes: “I have hit the age of 65 and now am considering what I most want to do for the next phase of my career. Still working, but traveling more and spending more time with our seven grandchildren is very rewarding. Getting to California frequently to visit my daughter and her family has been a nice opportunity to break up the cold winters in Calgary. I still love getting out to hike, climb, and cross-country ski in the mountains!”

Denise Mitten writes: “I still live in Prescott, Arizona, and regularly visit the East Coast to see my child and mother. I worked with 80 women in about 10 different countries to publish ‘The Palgrave International Handbook of Women and Outdoor Learning.’ Helen Caldicott, doctor of anti-nuclear fame who started Physicians for Social Responsibility, was the launch speaker. At 80 years old, she is still an engaging, dynamic, and brilliant speaker. I am winding down, still wanting to be productive and wanting to travel, too.”

Howie Neufeld writes: “Thought our alumni might want to see this new publication on air quality in the Smokies that my colleagues and I just published in *Atmospheric Environment: X*, a new online open-access journal from Elsevier. You can access the news story at today.appstate.edu/2019/03/19/air-quality-smokies. The actual publication is available online and via open access at [sciencedirect.com/science/article/pii/S2590162119300267?via%3Dihub](https://www.sciencedirect.com/science/article/pii/S2590162119300267?via%3Dihub).”

78 CLASS SECRETARIES
Susan Curnan, curnan@aya.yale.edu
L. Magleby, Immagleby@att.net
Regina Rochefort, gibbons.rochefort@gmail.com

Bob Gipe writes: “Based on a plan firmed up at our 40th reunion in October, members of the Class of ’78 set sail in February from La Paz, Baja Sur, Mexico, onboard a catamaran bound for desert islands in the Sea of Cortez. I served as captain with my wife, Betsy Fine, along as first mate. **Jim Sempere** led a landing party in La Paz to fully stock the liquor cabinet with local tequila and rum. Meanwhile, **Loring LaBarbara Schwarz** guided a detail to provision the larder with fresh vegetables, cheeses, seafood, and tortillas. **Andy Schwarz** served as coxswain of the dinghy and safely (though not without adventure) ferried the shore parties to and from desert landings. **Ed Becker**, backed by wife Sheila, proved to be reliable helmsmen, steering a straight course when others were distracted by breaching whales, diving sea lions, and cavorting porpoises. **Tom Rumpf**, hiking with wife Annee Tara, proved that a Maine forester can quickly adapt to the cardon cactus forests of the Baja. While we had hoped that Jim would demonstrate his well-known fishing prowess and supplement our food supply with fresh dorado, when this didn’t happen, he led a landing party to a fishing village to acquire fresh-caught yellowtail. We concluded our adventure camped on a Pacific Coast barrier island, where we could observe the arrival of migrating gray whales.”



Bob Gipe and other members of the Class of 1978.

Michael Rees writes: “Since retiring from the National Park Service (NPS) after 35 years, I’m really enjoying retirement. I’m volunteering with the NPS Technical Information Library and Saint Anthony Hospital (where I mostly stock rooms in the emergency department), ushering at the Denver Center for the Performing Arts, and about to start work as a park steward in the Jefferson County open space parks. Lots of fun!”

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79 CLASS SECRETARY
John Carey, carey@aya.yale.edu

Chris Brown reports that he is working on a pictorial history of the Washington Canoe Club, a facility on the Potomac River that has served the Washington, D.C.-area paddling and rowing community since 1904.

Pat Scanlon Leavenworth writes in to say that she has been retired from the USDA Natural Resources Conservation Service for several years now. She and husband Phil have enjoyed visits to Bocas Del Toro, Panama, to visit their son Dan in his Peace Corps community, where he was helping local cacao growers manage for climate change. From 2016 to 2018, Pat served as co-chair of the Wisconsin Food, Land, & Water Project – an effort sponsored by Wisconsin Land+Water – and she’s also been on the steering committee for a second Waters of Wisconsin (WOW) effort led by the Wisconsin Academy of Sciences, Arts, and Letters. (She was a co-chair of the first WOW effort from 2002 to 2003.) In addition, Pat has served on the board of the Groundswell Conservancy, a south central Wisconsin land trust, since 2013, and has been a board member managing an expanding Mount Horeb Farmers Market for five years. The Leavenworth family is now focused on handing over their farm in Ridgeway, Wisconsin, to the next generation. Daughter Helen is a conservationist with the USDA and son Dan works for a solar company in Dubuque, Iowa.

James Morris recently retired from a chaired faculty position at the University of South Carolina in biology and marine science but continues to work full time keeping up with eight active grants. He is a postdoc Ph.D. student and technician and travels to amazing places. His work on the effects of rising sea level on salt marshes has won a number of awards. His favorite plant species is *Spartina alterniflora*.

Robert Perschel writes: “I’m still busy as executive director of the New England Forestry Foundation. Our focus is on utilizing New England’s forests to mitigate climate change. We have published our climate-smart ‘Exemplary Forestry Standards’ and are doing life cycle analyses to show how it’s possible to significantly cut greenhouse gas emissions by shifting from concrete and steel for buildings to engineered wood products. We have a



Mass timber co-working shed design concept by John Klein Design + MIT Mass Timber Design.

Build It with Wood program that is working with architects, builders, foresters, and landowners to promote both great forestry and beautiful, affordable housing in our cities. We created the first-of-its-kind Pooled Timber Income Fund and are poised to launch an Exemplary Forestry Investment Fund with partners to address the large northern landscapes of New England. Meanwhile our Deep Roots land acquisition campaign seeks to double our forest ownership and give us representative community forest holdings in all forest types. In addition, all the timber marking that I did with **John Carey** and others in Yale-Myers Forest in the summer of 1978 seems to have paid off! At the New England Society of American Forests winter meeting, I was honored to receive the Integrity in Conservation Award. I hope students and alums will stop by our headquarters, Prouty Woods – right off I-495 in Littleton, Massachusetts – to visit.”

Chuck Peters writes: “I officially retired from the New York Botanical Garden in November of last year. Am currently an apprentice at the Center for Book Arts (centerforbookarts.org) in Manhattan learning letterpress printing and typography. Elysa and I are moving to Berkeley, California, later this year. Having a great time.”

Martha Tableman writes: “As I write, a second ‘bomb cyclone,’ which is like a winter hurricane, is about to hit Colorado. The drop in temperature creates strong winds and lots of snow. Colorado had a great winter this year, and I enjoyed living at 9,000 feet with lots of snow. The biggest change in my life is that both kids are now essentially gone – Mark is working for American Airlines, and Kate is at Landmark College. It leaves just me and Kali, the 2-year-old Irish setter, at home. It is an adjustment, but we are enjoying the quiet and living in the mountains. At work – Clear Creek County Open Space – I am overseeing construction of Phase 2 of the Peaks to Plains Trail in Clear Creek Canyon. Lots to do, but the end result is a 10-foot-wide path that winds its way alongside Clear Creek. Folks should stop by if they come to Colorado. I am only 90 minutes from the airport.”

80 CLASS SECRETARY
Sara Schreiner Kendall,
sarabskendall@gmail.com

Al Sample writes: “Serving on the F&ES Leadership Council with **Tom McHenry**, it has been great to see F&ES evolve to meet the challenges of the Anthropocene. Now at George Mason University (Environmental Science &

CLASS NOTES

Policy) teaching terrestrial ecology, ecosystem management, and natural resource policy with good memories and eternal thanks to Herb Bormann and Tom Siccama. On the boards of the Forest Stewards Guild and the Environmental Integrity Project. Dory and I are having great fun with grandkids Meredith (4) and James (1), for us the faces of the environmental future we are striving to protect.”

Marty Steele writes: “In early 2019, we sold The Bank of Washington to Sound Credit Union of Tacoma, which was the first merger of a bank and a credit union in the western U.S. Last month, I took over as president and CEO of First Sound Bank, a small independent community bank located in downtown Seattle.”

81 CLASS SECRETARIES
Fred Hadley, fhadley@sit-co.net
Gail Kalison Reynolds,
gail.kalison.reynolds@aya.yale.edu

David Van Wie writes: “I moved to Lyme, New Hampshire, last summer after 35 years in Maine. My wife, Cheryl Bascomb, is now vice president of alumni relations at Dartmouth, and I am a freelance writer and photographer. I’m finishing up my second book, ‘Storied Waters,’ about a fly-fishing adventure I took to visit famous rivers and ponds from Maine to Wisconsin and back that are mentioned in literature. It will be released in October 2019 by Stackpole Books. My first book, ‘The Confluence,’ just went to a second printing. For more information, check out my website at watchyourbackcast.com.”

82 CLASS SECRETARIES
Barbara Hansen,
bjhansen@fs.fed.us
Kenneth Osborn, kennethosborn@gmail.com

Ken Osborn writes: “I recently retired from my job as a forester in Skagit County, Washington. I plan on enjoying a less scheduled life.”

83 CLASS SECRETARY
Stephen Broker, ls.broker@cox.net

John Parrotta writes: “In these interesting and very challenging times, I continue to enjoy my work with the U.S. Forest Service’s research and development branch in various scientific syntheses, projects, and initiatives aimed at supporting programs and informing international policy processes for conservation, management, and restoration of forests and their biodiversity. Much

of this is done through the International Union of Forest Research Organizations (IUFRO), which will hold its 25th World Congress in Curitiba, Brazil, starting in late September. I hope to meet many old (and new) F&ES friends at the Curitiba Congress, at the end of which I will begin a five-year term as IUFRO president — a somewhat daunting prospect but a great opportunity that I am looking forward to.” (Look out for **John Paul McLague ’76**.)

84 CLASS SECRETARIES
Therese Feng,
Therese_feng@yahoo.com
Roberta Jordan Tabell, jordandr5@comcast.net

Dusti (Gardner) Becker writes: “Hi, everyone. Still doing what I care about: sustaining a loving partnership, doing community-based conservation and wildlife monitoring in Kenya, birding, doing basic research on bird ecology (Ecuador) and giraffe demographics (Kenya), doing wolf conservation advocacy around Yellowstone National Park, and bucket list traveling — Raja Ampat for snorkeling, Madagascar for birds and lemurs! Looking for a few friends to join me in Madagascar July 23–August 11 this summer. Still co-directing Life Net Nature with my husband, based in Arizona, might move to Hawaii, am for Tulsi 2020, on Medicare at last, and otherwise getting older as gracefully as possible. Hugs!” dustizuni@yahoo.com



Dusti (Gardner) Becker, friend Beth, and husband Tony in Big Sky Country, Bozeman, Montana.

Therese Feng writes: “I’m starting the third week of an involuntary yet very welcome sabbatical of sorts, which is giving me time to think about values and direction ... yes, at this geriatric age. Coupled with taking an alumni college course (‘The Life Lived Well’) that poses basic questions and leads us through philosophical and religious readings — whew, Kant was slow going — and spending leisure time with my gap-year daughter, newly returned

from China; it’s a very different spring than any of those I’ve spent in the last 20 years in finance. Might be the last spring spent fretting about leveraged loan volume, liquidity concerns in the BB bond space, and whether the Brexit cliff or a China slowdown poses a more convincing stress scenario (let alone staring at my Bloomberg and overeating). Also my last year as board chair for an outfit that fundraises to provide microfinance and extreme poverty alleviation in Haiti. So, fair warning that I may pop up on your Alumnifire (please join, it seems to be constructive) to ask you questions about what you like about what you do. Thanks in advance! (Hey, it’s only been 35 years since we graduated.)”

85 CLASS SECRETARY
Alexander Brash,
alexanderrbrash@gmail.com

Louise de Montigny writes: “In January I retired after a 28-year research career with the British Columbia Ministry of Forests and, more recently, as an adjunct professor at the University of British Columbia. Over the years I established many long-term silviculture experiments to generate high-quality growth and yield data that has been and will be used to develop models and other decision-making tools; this data will become increasingly valuable in predicting best management practices under increasing uncertainty from climate change and its impacts. Since retiring, I am a director for the Victoria Canoe and Kayak Club, with a goal to promote fitness and safe paddling in our community. With my husband of 30 years, Raoul Wiart, we now have the time to explore Canada’s beautiful lakes, rivers, and coastlines. Let’s plan to reconnect at our 35-year reunion in 2020.”



Louise de Montigny and husband Raoul on a 12-day paddle in Gwaii Haanas National Park with friends from Victoria Canoe and Kayak Club.

Roy Smith writes: “I’m enjoying retirement and fighting for social justice, which is what most of our environmental endeavors, local and global, are about. I’m part of a PAC fighting to stop a huge developer from building in our state’s last iconic holdout — the Granite Dells in Prescott, Arizona. Biked 400 miles across Cuba — beautiful country, wonderful people. My wife and I spend half the year at our home in Crested Butte, Colorado, and the rest with our son in New Zealand and Prescott, Arizona. Come and visit.”

86 CLASS SECRETARY
Seeking volunteers!

Kyle Datta writes: “I just completed 10 years in the service of Pierre Omidyar as the founder and general partner of the Ulupono Initiative, an impact investing initiative focused on systemwide transformation for Hawaii in renewable energy, local food, and waste management. We brought the state from 20 to 40 percent renewable energy, on its way to 100 percent by 2045; revived the cattle industry by shifting to grass-fed beef; and made farm-to-school a statewide reality. Now onto my final encore career — destination unknown.”

87 CLASS SECRETARIES
Christie Coon,
christie.coon@gmail.com
Melissa Paly, mpaly01@gmail.com

Andrew Brower writes: “After 21 years of professing biology and entomology, I cut my hair, quit my job at Middle Tennessee State University and took a different job as assistant director of the National Identification Service at USDA Animal and Plant Health Inspection Service. I supervise the national entomological taxonomists, who are responsible for providing definitive identifications for insects intercepted in imported commodities, freight, and baggage at U.S. ports of entry. I wear a tie, punch the clock, and take a mandatory lunch break. Living for the moment in northern Virginia and working in Riverdale, Maryland, with daily MARC and Metro rides providing time for reflection and writing.” Andrew.Brower@usda.gov

Christie Coon writes: “Just gave a quick wetland/nature talk at a recent annual meeting and resurrected Tom Siccama’s funny ways to ID vegetation, like cinnamon fern for example: ‘The fuzzy tufts at the base of each leaflet look like an old woman’s hairy armpit!’ Miss that guy! We were lucky to have that raunchy boy!”

Julie Dunlap writes: “Hi, everyone. I had the pleasure of seeing **Ann Hooker Clarke ’81** when she and her husband visited D.C. in March. I’ve been doing some teaching (wildlife ecology) and writing (forthcoming children’s book: ‘Janey Monarch Seed’) but am increasingly focused on climate change, partly because of my new grandson.”

Laura Falk McCarthy, 2018 Distinguished Alumni Award recipient, recently left her post at The Nature Conservancy and continues to do F&ES proud! She writes: “I was appointed to be New Mexico’s state forester in March. I’m grateful for the opportunity and daunted by the challenge of managing forests and wildfire in the face of rapid climate change.”

Melissa Paly writes: “Wrapping up a snowy winter in northern New England with a fantastic hut-to-hut ski trip in the Appalachian Mountain Club’s Maine Woods with pals **Josh Royte** and **Brenda Lind ’86** — perfectly timed to coincide with a frigid Nor’easter with two feet of snow and below-zero temps. Joined another snowy and delicious F&ES gathering in Vermont with **Brenda, Jane Ceraso ’86, Caroline Norden ’86, Tara Gallagher ’86, Cathy McConnell ’86, and Sarah Clark ’86** in spirit (and via Photoshop). Coming up on two years as Great Bay-Piscataqua Waterkeeper with Conservation Law Foundation, loving the daily challenges and opportunities to advocate for clean water and healthier communities in the Seacoast region of New Hampshire and southern Maine.”

Christopher Pratt writes: “Still running Opensash, the window company that insulates old windows. I have recently hired Eli Olson, the son of **Naomi and Eric Olson ’88**, to help me. He is doing really well and is a great new addition to the four-person crew. When I am not doing windows, I am working on a huge wooden foot bridge and a woodpile fence. Lots of wood in my life, so I’m pretty happy.”

Joshua Royte writes: “As part of my river restoration work with The Nature Conservancy in Maine, I chair the steering committee of the World Fish Migration Foundation, and through that co-wrote and co-edited my first book, ‘From Sea to Source 2.0.’ The book is a practical guide to understanding river connectivity issues, migratory fish, and how to restore them. The overall goal is to promote the protection and restoration of fish migrations in rivers worldwide. While aimed at practitioners, it’s a great resource for students as well as the general public. It is full of inspiring stories, hard lessons learned, and great successes

from nearly every continent on the planet. The book can be downloaded for free at fromseatosource.com. We hope more people download it or order hard copies with their communities, classes, and organizations around rivers. Through this work I’ve also been retained as an advisor to AMBER International, an effort to create an atlas of barrier on Europe’s rivers, tools to prioritize barrier for river restoration, and recommendations for policy to fix them. There is also a new short film about our signature event, World Fish Migration Day, that I co-wrote and narrated. See the 90-second trailer at vimeo.com/319234626/9d74d39542.”

88 CLASS SECRETARIES
Diane Stark, salserad@yahoo.com
Philip Voorhees,
philiphvoorhees@gmail.com
Holly Welles, hwelles@princeton.edu

Stephen Gorman writes: “Over most of the last decade I’ve been photographing in the Arctic from Alaska to Greenland. Last year I was the only American photographer chosen by the U.S. State Department to participate in an exhibit, Eyes on the Arctic, that opened at the U.S. Embassy in Ottawa and toured American consulates across Canada. The Eyes on the Arctic exhibition highlights U.S./Canada relations in the Arctic. Telling stories of indigenous life in the North, the photographs reveal their adaptability and means of sustenance, helping visitors understand and appreciate the significance of the region within a global context. Eyes on the Arctic focuses on the Americans and Canadians who live within the northernmost reaches of the planet and underscores the accomplishments of the scientists, researchers, and individuals from both countries who have dedicated their lives to learning about and planning for the future of this polar region. I’d love to hear from other alums working in this part of the planet!”



Steve Gorman at the U.S. Embassy opening of Eyes on the Arctic in Ottawa.

89 CLASS SECRETARY
Elizabeth Carlson,
betsycarlson24@gmail.com

Betsy Carlson writes: “Still in the Pacific Northwest and working as the citizen (community) science coordinator at the Port Townsend Marine Science Center. Life is full of all things marine, including responding to stranded marine mammals, surveying seabirds, looking at plankton samples for harmful algae, counting sea stars, raising pinto abalone, and watching the antics of a giant Pacific octopus. Not much forest bathing these days. But there are plenty of breathtaking sunsets.”

Robert Heinzman writes: “A neighbor commented that the only reason I would leave Colorado and live in the Berkshires of Massachusetts would be for love. It’s true. I’ve been really lucky. Lately, I’ve been renovating an 1850 house while building a consultancy (Growth River) that partners with leaders to navigate transformational change in their organizations. There are grandchildren, dogs, a garden, and serving on a couple of nonprofit boards. Always fulfilling days.”

Claudia Martinez writes: “Thirty years after graduation, I am still waiting to have my classmates visit Colombia. I continue to work at E3-Ecología, Economía y Ética, the institution I created almost 10 years ago. We are coordinating the New Food and Land Use Economy for Colombia (FOLU Colombia), developing lots of actions on peace and the environment, promoting innovative financing mechanisms, and supporting climate change programs. My two sons, Pietro and Antonio, are happy studying at the University of Los Andes, and Marco Ehrlich, my Italian husband, is acting as the research director of the Amazon Research Institute of Colombia (Sinchi). I have one foot out as an independent technical advisory panel member of the Green Climate Fund, flying frequently to Korea. I would really like to see you all, here in the south.”

Cyril John “CJ” May writes: “Continuing my use of ‘enviromagic’ in 2019 for environmental education is leading in strange directions. I used magic while lobbying the Connecticut Legislators’ Environment Committee, levitating a bottle to argue for the expansion of the Bottle Bill. I also changed \$25 into \$80 to showcase that the money we save in recycling would be lost if we had to spend \$80 to trash recyclables. Catholic schools are responding to the pope’s encyclical about the environment and climate change, and I am getting

increased calls to perform my climate change/energy show, MAGITRICITY, as a result. But the real treat was to share Water Wizard with attendees at the State of the Rivers Conference.”



CJ May uses “enviromagic” to testify before legislators.

Laurie Reynolds Rardin writes: “Hello to all of you dear people, who I am sure are working hard to improve our environment and our relationship to it in some way, shape, or form. I think back on our time at F&ES with joy and am now telling our daughters about the great community we were a part of as they think about grad school. I am still at Dartmouth College (in my 10th year), communicating our science on arsenic and mercury from an environmental public health perspective. The urgency of clean water for all comes up more and more in this work, and the need to convey to community members the importance of prioritizing safe drinking water is high. There is always more to do, but Jed and I are traveling vicariously through our daughters, Brynne (23) and Marta (21), who are adventuring well beyond our borders. Brynne works on a live-aboard dive boat as a dive master in the Bahamas, helping people learn about and appreciate the marine world, and Marta is studying environmental science and cultural and political ecology in Bhutan through the School for Field Studies for her junior semester abroad. Jed continues in his 18th year as pastor of South Congregational Church in Concord, New Hampshire, and I am pushing solar panels for the church roof! Maybe Jed and I can make it to New Haven for our 30th! Be well, all.”

Mary Nelligan Robbins writes: “As David Brooks so aptly describes in his new book, we are our second mountain. So grateful for all that life has given us. Our oldest son graduated with a history/theater double major and a minor in dance. He is hoping to be accepted to Yale Drama to study dramaturgy. Our daughter is graduating with her

bachelor’s in social work and our youngest son is completing his sophomore year. We have since added a daughter who came to us through foster care at age 18, and we are currently fostering an energetic, beautiful son. John works for a company that is researching and soon bringing online gene therapies for rare blood cancers, and I serve as the vice president of the Worcester Area Mission Society, where I work to enact social change.”

90 CLASS SECRETARY
Judy Olson Hicks,
hicksjudyo@yahoo.com

Melissa Grigione writes: “Hello, all! I am now a full professor in biology! My husband and I still study large mammals and carnivores (mostly out West). Our children are growing before our eyes. Please contact me if you are ever in the New York metro area!”

91 CLASS SECRETARY
Gwen Thomas,
gmthomas29@fastmail.fm

Chris Rodstrom writes: “I recently joined Vineyard Wind in Massachusetts to work on the technical design and permitting for new offshore wind projects connected to New York and New England. It’s an exciting time for the growing U.S. offshore wind business and an important part of the transition to a low-carbon energy future.”

92 CLASS SECRETARY
Katherine K. Farhadian,
farhadianfamily@gmail.com

Mary Verner writes: “I’m immersed in responsibility for managing water rights and water supply for the Washington State Department of Ecology and am enjoying the complexities. When not at work, I’m with my family restoring a small farm and its heritage barns in rural southwestern Washington. Yalies are welcome to come visit!”

93 CLASS SECRETARIES
Dean Gibson,
dgibson@sandiegozoo.org
Molly! Goodyear, bvidogs1@gmail.com
Heather Merbs, h.merbs@comcast.net

Susan Helms Daley writes: “I’ve been busy with my two teenagers, leading tours in the Emerald Necklace and helping our town reduce its carbon footprint (working with Mothers Out Front and as a town meeting member, our very local legislature). It’s always a high point when I get to connect with our amazing classmates!”

John Norwood writes: “Greetings, foresters, from Des Moines, Iowa! This is my 55th year of life, and it’s great to be vertical, isn’t it?! A little news about me: I have two wonderful children – son Brook, who is now a sophomore at Luther College in Decorah, Iowa, and daughter Sarah, who is a sophomore at Valley High School. They are my pride and joy. My career continues to unfold, and last fall I won a competitive election to represent Polk County as one of five soil and water commissioners. We are an extension of state government, and our charge is to protect our soil and water. Boy, do we need help here in Iowa doing that! Stay tuned as I advocate for a three-pronged approach, which includes \$60 million in annual conservation infrastructure; more targeted agronomics like cover crops; and a diversification strategy for new crops like industrial hemp, which can help us broaden the two-crop monoculture that has depleted our soils, degraded our water, and caused a host of financial issues. We will need an army of F&ESers to help us with this work over the next 40 years. All the best!”

Eugene Simonov writes: “I am still residing in Dalian, China, with my wife, Svetlana; son, Daniil; daughter, Maria; and cats Knox and Socks. (You’re welcome to visit if you’re here!) The Rivers without Boundaries International Coalition, which I coordinate, continues its quest in Amur River, Lake Baikal, and other basins of Eurasia as well as wider policy work on river basin management in countries affected by the Belt and Road Initiative of China (see transrivers.org). All my activism disguised as research on dams, transboundary rivers, civil movements, strategic assessments, etc. is collected at researchgate.net/profile/Eugene_Simonov. Turning 50 does not stop you from being yourself. Hope to see you all someday, somewhere.”

94 CLASS SECRETARIES
Jane Calvin, jcalvin@prospeed.net
Jane Whitehill,
janewhitehill@gmail.com
Cynthia Henshaw Wood, c.henshaw@comcast.net

Beth Conover writes: “I’m five months into a new job as the first director of The Salazar Center for North American Conservation at Colorado State University, created by former Secretary of the Interior Ken Salazar. **Ken Snyder** and I are spending part of our time in Fort Collins, though the center will eventually be part of the National Western Stock Show redevelopment in Denver. Focus is external, on convening partners on issues of landscape connectivity, urban green space, and growing diversity of stakeholders for conservation

issues. I’m enjoying working with fellow F&ES alums **Jocelyn Hittle ’05**, **Gary Tabor ’92**, **Morgan Grove ’90**, **Jim Barborek ’99**, and **Lise Aangeenbrug ’90**, among others! Please say hi if you come our way.” Beth.conover@colostate.edu

Erik Kulleseid writes: “I was honored to be nominated by New York Gov. Andrew Cuomo to be state parks commissioner in January. I’ve now been on the job for three whole months (as of April). A little like drinking water from a fire hose but totally out of body and loving the job.”

Jennifer O’Hara Palmiotto writes: “I had a great time visiting with **Buzzie McGraw** at the Smith Plant House back in February. As always, great to see her! When not working, I have been playing taxi driver for two Nordic skiers (my kids). I am currently working on a collection of Adirondack watercolor paintings for a show in early summer.”

Peter Palmiotto was appointed chair of the Environmental Studies Department at Antioch University New England in July 2018.

Jane Whitehill writes: “What a good time we had at Great Mountain last summer. I am looking forward to seeing you all in New Haven in October. Very busy here, working on some weird new drugs and volunteering for the current 57 presidential candidates. On Saturday, I will get together with a bunch of friends to read aloud from ‘My Life and Hard Times,’ written in 1933 by James Thurber and still a treat. It’s a great day. There is a certain amount of eating and drinking involved.”

95 CLASS SECRETARIES
Marie Gunning,
Mjgunning@aol.com
Ciara O’Connell, cmoconnell@comcast.net

Ken Pruitt writes: “Hi, everyone. I hope all is well with each of you and your families. I made a



University of Vermont Forestry Professor Bill Keeton and Ken Pruitt spent some quality time in Burlington on March 2.

significant career change in July 2017 when I left the Environmental League of Massachusetts after nine years as managing director and then executive director, and became the energy manager for the town of Arlington, Massachusetts. After 14 years in the nonprofit advocacy world, it was time for a change. I’m really excited to be working on energy efficiency and renewable energy projects for the town, as well as helping to lead the town’s new net zero by 2050 campaign. I find my work super engaging and challenging (in a good way). On the personal side, our daughter will be going to college this fall (still needs to choose which one), and our son is a freshman in high school. My wife and I, our children; and our rescue dog, Lucy, have lived in Winchester, Massachusetts, for the last nine years. I miss all of you.”

96 CLASS SECRETARIES
Kathryn Pipkin,
kpiplin9999@gmail.com
Julie Rothrock, jrothrock@maine.rr.com

Chris Lotspeich writes: “Since 2012, I’ve been the director of Sustainability Services for Celtic Energy, a small consultancy based here in Glastonbury, Connecticut. We serve as owner’s representatives for energy efficiency, renewable energy, and distributed generation projects, providing advice and quality assurance oversight for public sector, as well as institutional and business clients. I focus on microgrids, resilience, and energy assurance for clients including the military, FBI, and municipalities. In 2019, we were bought by NV5, expanding our service offerings. My wonderful wife, Amy Dunn, and our 14- and 10-year-old daughters enjoy suburban life with our dog and cats. Interstitially I chip away at unpublished novels and a family history book project. In 2016, I was diagnosed with ALS. I’m fortunate to be progressing very slowly, and I’m hopeful for a cure in my lifetime.”

97 CLASS SECRETARIES
Paul Calzada, pcalzada@cf.org
Jocelyn Forbush, jforbush@ttor.org

Luisa Camera-Cabrales writes: “I got a year off from my current tenure position as professor from the Juárez State University of Tabasco (Universidad Juárez Autónoma de Tabasco). I am the coordinator of Sembrando Vida (life planting), a government agroforestry national program. I coordinate for municipalities in southern Mexico in Tabasco state. We are planning to establish 50,000 hectares of agroforestry systems using native trees for multiple uses (timber, fruit, etc.). Each participant or peasant will plant 2.5 hectares.”

Jon Kohl writes: “I am happy to report that my last book came out at the end of the year. It’s called ‘The Interpretive Theme Writer’s Field Guide.’ It’s a pocket companion to Sam Ham’s ‘Interpretation: Making a Difference on Purpose: How to Write a Strong Theme from Big Idea to Presentation.’ The field guide is designed for anyone participating in communications related to heritage or environmental issues, where the objective is to deepen people’s understanding and relationship with the interpreted object rather than just educate or teach. Very important for park rangers, exhibit designers, sign writers, documentary makers, and environmental educators. If interested, I encourage you to use this Amazon link through which any purchase of items (including the book) results in a donation for my nonprofit, the PUP Global Heritage Consortium, whose mission is to transform the current paradigm in heritage management and planning to a more holistic focus: amzn.to/2IlhS6o.”

98 CLASS SECRETARY
Seeking volunteers!

George Berghorn writes: “I was appointed as an adjunct assistant professor in the Michigan State University (MSU) Department of Forestry. This is in addition to my regular position as an assistant professor of construction management at MSU, where my research focuses on mass timber construction and salvaged lumber reuse into high-value engineered materials. In February the student competition team that I coach won a national championship at the National Association of Home Builders (NAHB) Student Competition, where they competed against 36 other universities. I was also named 2018 Outstanding Junior Educator by NAHB.”

David Konisky writes: “I am on the faculty at the O’Neill School of Public and Environmental Affairs at Indiana University, where I was recently promoted to full professor. I live in Bloomington with my wife, Kristen; our two boys, Ben (10) and Will (7); and our dog, Winston.”

Jennifer Rusiecki writes: “I am living in the D.C. area with my husband, Raj, and two kids, Calum (10) and Iona (9). There is lots of baseball, ballet, and band in our lives. On the professional front, I’m faculty at the Uniformed Services University in Bethesda, teaching environmental and occupational epidemiology and doing research on the health of oil spill responders, pesticide applicators, and military populations. Life is busy and good! Hello to all my fellow F&ESers!”

99 CLASS SECRETARIES
Jennifer Garrison Ross,
jennifergarrisonross@yahoo.com
Christiana Jones Soares,
christiana@jonesfamilyfarms.com

J. Ripley Heintz writes: “Salutations, friends! Things are status quo here: Lillian, Evelyn, and I live near Hartford. They are 12 and almost 10. I’m still a tree hugger, and they are my minions! We started homeschooling in January to accommodate their learning styles, escape the anxiety, and focus on what we love. It’s easier in some ways, harder in others. Thanks to all of you for sharing your adventures via Facebook and for meeting up when time and distance permit. Will there be a fun 20th reunion party for us in New Haven? Can you believe it’s been two decades?! We should donate/plan a scholarship like the Class of ’80 does.”

00 CLASS SECRETARIES
Erika Schaub, eamffe@hotmail.com
Zikun Yu, info@ayuglobal.com

Navis Bermudez writes: “I recently rejoined the House Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, where I work on Clean Water Act issues. When I am not at work, I am busy running around after a toddler. My family and I are looking forward to a trip to Glacier National Park this summer, and I’m hoping to catch up with some F&ES friends here in D.C.!”

Sylvia (Stone) Busby writes: “I recently went back to working with The Nature Conservancy, this time as a senior donor communications officer. In 2018 I enjoyed seeing **Maureen Cunningham** and her family in New York, as well as **Colin Apse** and his family in Joshua Tree! My family and I live in San Diego and are enjoying this year’s ‘Super Bloom!’”

Ali Abuyuan Monge writes: “Since December 2016, I have helped run a federal hybrid super PAC and social welfare organization based in Orange County, California (a longtime Republican bastion). As vice president of Women for American Values and Ethics, I help lead a large group of motivated and passionate women advance progressive values and ethics, particularly in the fields of immigration, the environment, and civil rights. As a PAC, we support and endorse candidates who align with our mission. We made a huge impact in the past midterm elections, helping flip four key Orange County congressional districts from red to blue and contributing to the victories of several down-ballot candidates. We are currently

gearing up for the big fight in 2020. Hopefully we end up with elected officials who believe in science and climate change (among other things)!”

Harry White writes: “I’m still working in the trenches of land conservation going up against industrial foresters and loggers and their mythologies, most recently working on the forever-wild protection of a 5,400-acre forest block in northern Vermont. I’m also working with the Old Growth Forest Network as part of Dr. Joan Maloof’s team. Happy days and bright skies to all of my F&ES friends.”

01 CLASS SECRETARIES
Leigh Cash, cash@statsrule.com
Adam Chambers,
adam.chambers@por.usda.gov
Jennifer Grimm, jennywgrimm@gmail.com

Dechen Dorji writes: “Happy greetings to all! I am still working as the World Wildlife Fund country representative for Bhutan. I am pleased to share the news that the innovative conservation fundraising project called Bhutan for Life that I have been working on has now successfully reached its target of \$43 million, and implementation will begin soon. These funds will be spent on conservation and sustainable development programs in the entire protected areas of Bhutan. Wishing everyone happiness and good health.” dechendorji@gmail.com



Dechen Dorji at 4,428 meters, glacial lake ... melting fast!

Marc Stern writes: “Hey, all. I published a book in 2018 I think might be useful for F&ESers working around the world. It’s called ‘Social Science Theory for Environmental Sustainability: a Practical Guide,’ published by Oxford University Press. The basic premise is that sustainability challenges are first and foremost people challenges. The book provides concise descriptions of over 30 social science theories and how to use them to develop strategies for environmental problem-solving.

The second half contains a series of vignettes that further demonstrate how to turn these theories into real strategies for taking action. I’ve been using the book to teach graduate courses and professional seminars. Participants have consistently found it useful. My graduate students have called it the CliffsNotes to social science for environmental problems – I think I’m OK with that description. I wrote the book for busy, smart people who want to find new ways to approach super-challenging people problems in their work. The book draws on decades of prior research in various social science fields in an effort to make it easy for readers to consider new approaches to old problems.”

03 CLASS SECRETARIES
Benjamin Hodgdon,
benjamin.hodgdon@gmail.com
Pete Land, peter.c.land@gmail.com

Katie Lange Dolan writes: “I recently published an illustrated book about piping plover conservation, written from the perspective of my sweet Newfoundland, Bella. The book was featured on the cover of the local newspaper. Check it out on Amazon!”

Laura Ruiz writes: “Hi, all. My teaching career has now led me to teach science at a middle school near my home in East Los Angeles. I work with amazing kids and families in the Los Angeles Unified district. I am lucky I work close to home and minutes from my two daughters’ school. I miss the outdoors very much but plan to spend our time off visiting places around California. Let me know if you are up for a visit!”

04 CLASS SECRETARIES
Keith Bisson,
keith_bisson@yahoo.com
Daniela Vizcaino, dana.vizcaino@gmail.com
Jennifer Bass Vogel, jennifer_vogel@yahoo.com
Laura Wooley, le.wooley@gmail.com

Liz Martin Perera writes: “Happy 2019, my dear fellow F&ESers! I am still pushing hard for climate action as climate policy director for the Sierra Club in Washington, D.C. I am proud to be working with a bunch of fellow F&ESers both on and off Capitol Hill, and it’s great to see us all tackling the climate crisis. Alex Perera, a director of energy at World Resources Institute, and I are the most challenged when we are running after our two future changemakers, Lia (10) and Aiden (8). Please reach out to me to catch up! Peace and love to you all.”

05 CLASS SECRETARIES
David Cherney,
david.cherney@colorado.edu
Dora Cudjoe, dcudjoe@worldbank.org
Virginia Lacy, virg.lacy@gmail.com
Benjamin Urquhart, bnurquhart@gmail.com

Anamaria Aristizabal writes: “I have ventured into the field of personal development and leadership development in Colombia and the U.S., wrote my first book in Colombia, and created a company called Leading Change Institute in the U.S. My hope is to work with people like F&ESers who are being change agents in their communities.”

Ellen Brown writes: “I’m living in the U.K., near Oxford, and working for the High Conservation Value Network, where our work focuses on identifying and conserving social and environmental values in commodity production landscapes.”

Sarah (Matheson) Mihalecz writes: “In April I joined the Renewable Energy Buyers Alliance as director of U.S. Energy Market Programs. I’m excited to work with this group to help companies transition to renewable energy.”

06 CLASS SECRETARIES
Krista Anderson,
Anderson_kb@yahoo.com
Flora Chi, flora.chi@gmail.com
Reilly Dibner, reillydibner@gmail.com
Sue Ely, suzie.ely@gmail.com
Jill Savery, jillsavery@gmail.com

Saima Baig writes: “I recently moved to the U.K. and now live in Liverpool. Before this, I was in Sri Lanka working as head of the Regional Environmental Economics Program at the International Union for Conservation of Nature Asia, and then as a freelance consultant in Pakistan. Now I have started my own company called DoLocal Ltd., which has two functions:



Saima Baig

digital marketing and environmental consultancy. Through this I hope to continue freelance work but mainly concentrate on environment/climate change communication. Please follow my environmental Twitter (@MedusaonEarth) and science Twitter (@360onHistory).”

Gudmundur Ingi (Mummi) Gudbrandsson is now minister for the Environment and Natural Resources for the Republic of Iceland.

Chris Meaney writes: “It’s been a while, F&ES! After 11 great years in Washington, D.C., my family and I – wife Kristin, Hallie (5.5), and Evan (2.5) – moved to Portland, Maine. I’m now working for the U.S. Fish & Wildlife Service as the Gulf of Maine coastal program project leader. My staff and I work to identify, assess, protect, and restore important coastal fish and wildlife habitat through voluntary partnerships in the Gulf of Maine ecosystem. I’ve also been active with the National Conservation Leadership Institute as a fellow and peer coach, which has been challenging and fun. Great seeing **The Social Ogor** last fall in the Windy City, and I look forward to seeing some of you in Maine.”

Christina (Zarella) Milloy writes: “Hello, everyone! I continue to work for the U.S. Fish & Wildlife Service (FWS) as a fish and wildlife biologist and was recognized with a STAR award for my work partnering with The Wildlife Society to recognize outstanding wildlife restoration program projects. FWS also supported my completion of a Women in Leadership certificate at Cornell University. After years of mentoring undergrad and grad students (at F&ES, Yale University, and other schools), I’m excited to share that I recently launched a part-time coaching business to help young professionals navigate life and career transitions. I offer an F&ES discount! A portion of profits supports homeless youth (the same organization that helped me when I was a homeless teen). Learn more at sunstonecoachingcompany.com.”

Alison Rau writes: “I live in the greater Hartford, Connecticut, area with my husband and two children – just welcomed a little girl last year to join her big brother! I am in state service as an attorney with the Department of Emergency Services and Public Protection.”

07 CLASS SECRETARY

Seeking volunteers!

Jenna Bourne writes: “My family and I moved to the Burlington, Vermont, area last July so I could take on a challenging new role as global sustainability manager at Ben & Jerry’s, where I’m focusing on our climate strategy and sustainable packaging. We’re settling into Vermont life with black bears in our backyard, a very long ski season, and ice cream for certain. My two little boys are excited to be joined by a little sister this summer. Please reach out if you’re in the area — I’d love to hear from you.”

Jamie Howland writes: “After many years of working with a long list of fellow F&ES alumni at Acadia Center/Environment Northeast, my wife, Rebecca Furer (Yale College ’95), and I moved with our two daughters, ages 8 and 11, to Bonn last summer, where I have taken a position with the U.N. Climate Change Secretariat. We are all enjoying living in Germany and getting to explore many new places. While I’m thousands of miles away from New Haven, it’s hard to be far from F&ES, as I discovered in my first few days of work that **Nalin Srivastava** is just down the hall from me at the Secretariat.”

Brandon (Berkeley) Middaugh writes: “I am currently leading distributed energy innovation on the energy and sustainability team at Microsoft. My husband, Mark Middaugh, and I are also eagerly awaiting the arrival of our son later this spring. We’ve enjoyed seeing **Claire Gagne**, **Dawn Lippert**, and **Anton Chiono ’08** in our recent West Coast adventures.”

Hannah Murray writes: “In the spring of 2018, Nelson and I moved back to the U.S. from Patagonia and settled in midcoast Maine. I spent my first year managing the forestry program of the Maine Organic Farmers and Gardeners Association and then switched gears to work with The Humane League, an organization that campaigns to improve the lives of farmed animals. I manage an international grants program that supports activists dedicated to ending the abuse of animals raised for food. It feels like a good fit for me, and while I’m no longer working in forestry, I get out in the woods as much as I can and am enjoying living in and exploring the nation’s most forested state.”

Tamara Muruetagoiena writes: “I live in the California Bay Area, where I have been working for Driscoll’s berry company for six years. I am

a senior global manager, and throughout this time I have led the sustainability group, the company’s organic agriculture strategy, and now am focused on the research and development group working on global scientific programs for berry production. But more importantly, I have a 2-year-old son, Luke, who I hope one day becomes an environmentalist.”



Tamara Muruetagoiena and friends on a field trip to Costa Rica.

08 CLASS SECRETARIES

Angelica Afanador Ardila,
angelica.afanador@aya.yale.edu
Kelsey Kidd Wharton, kelseyk.wharton@gmail.com

Meg Arenberg writes: “I’ve been living in (and loving) Philadelphia for a couple of years now and am excited to have begun a job this fall at the University of Pennsylvania that truly combines my myriad interests and experience. Check out the Penn Program in Environmental Humanities at ppehlab.org.”

Georgia Basso writes: “Heading up to New Haven for our 10th reunion was great. So much fun to be together and celebrate **Sarah Charlop-Powers ’09** and a few birthdays (**Jamie Carlson ’09** and **Brenna Vredeveld**)! Can’t believe it’s been 10 years, but like a fine wine, we are even better with age.”

Ashley (Roberts) Joy writes: “This year marks 10 years together for Matt and me, as well as our two-year marriage anniversary as the Joys! Here is a little of what has helped the last decade speed by for us: Last summer we co-founded a construction business called Captain Hammer Construction. We just completed our first beautiful spec home. I loved choosing all of the finish materials, including stunning natural red oak floors throughout. I continue to explore the relationship among soil health, quality food, human health, and natural healing. Matt and I have even been teaching a few

cooking classes. Currently we are planting our garden and dreaming up clever ways to improve our 1910 home by expanding into the unfinished attic space. We now have the skills; if only we had the time!”

“Reading *Canopy* brings back so many fond memories of my too-short but very meaningful time at F&ES. I love hearing what everyone is up to. Though out of the way in Wyoming, I am always delighted to see a familiar face. If you are ever near the Equality State, be sure to give a shout.”

Kelsey Kidd Wharton writes: “In this past year I quit my job working as a science writer for Arizona State University to make more time for my own writing and podcasting, as well as my two growing boys. It was so much fun to see so many classmates at the reunion in October! We fell into the fun camaraderie we always enjoyed, and it was a treat to meet several little foresters in training. Can’t wait to do it again!”

10 CLASS SECRETARIES

Luke Bassett, lhbassett@gmail.com
Paul Beaton,
seneca.maior@protonmail.com
Clara Fang, clara@earthdeeds.org
William Lynam, william.lynam@aya.yale.edu
Kristin Tracz, kristintracz@gmail.com
Daniella Aburto Valle,
daniella.aburtovalle@gmail.com

Paul Beaton writes: “Hello, beloved and most awesome Class of 2010! I’ve relocated to Melbourne, Australia, where I try to hang as often as possible with the most wonderful **Steph Niall** and family and my beloved, **Katy Mixer ’17**. On the way here I wound down my work at the National Academy of Sciences and then undertook an intensive mindfulness meditation retreat/mental training (14 hours per day) in Myanmar. Right now, I’m benefiting from all of Kyle Wayne Williams’ work to develop Designing Your Life tools for us all as I engineer a professional pivot away from policy work to support commercializing environmental technologies — and more toward actually commercializing. Amid all that, I started training to teach mindfulness and managed to connect with many wonderful F&ESers across the country. Love you all!”

Jason M. Brown writes: “Hello, Yalies! Having graduated from the Institute for Resources, Environment, and Sustainability at the University of British Columbia (UBC), I am currently teaching environmental and religious studies courses at Simon Fraser University in Burnaby, British Columbia. I am also working on a project as a joint research associate at the Faculty of Forestry

and W. Maurice Young Centre for Applied Ethics at UBC. I am also a research associate at the Vancouver School of Theology. My latest project is developing some interactive online workshops through my Holyscapes Project. Come visit!”

Chelsea Chandler writes: “**Scott Laeser ’08** and I welcomed our daughter, Maya, to this beautiful world on Valentine’s Day. We also remodeled our farmhouse, which includes many energy-efficient features and a geothermal system, and are looking forward to having lots of visitors.”

Eric Desatnik writes: “I (still) lead global communications for the XPRIZE Foundation, where we design and operate multimillion-dollar competitions to bring about technological breakthroughs that benefit humanity. A couple of prizes we may launch soon are related to coral reef restoration, atmospheric CO₂ extraction, and the Amazon rainforest, so get in touch if there’s synergy. Also, I still play pub trivia and do escape rooms, so my life isn’t that serious.”

Frederica Helmiere writes: “**Jordan Jobe** and **Nathan Karres** live a block away in South Seattle. Jordan is research associate faculty at Washington State University, focusing on floodplain management issues. Nathan works for the Global Water team at The Nature Conservancy. I’m on the global staff of the United Religions Initiative, a grassroots interfaith network that, among other things, works to bring together faith communities around environmental issues. My two botanically named youngest daughters, Sage and Juniper, are in preschool together. Our families frequently gather together wearing clashing patterns.”

Kathayoon Khalil writes: “In May, I will be leaving my job at the Seattle Aquarium to take a new position at the Oregon Zoo. I’ll be their first conservation impact manager, developing and evaluating the zoo’s local and international conservation work. If you’re ever in the area, come visit!”

Lucy Magembe writes: “Hi, fellow F&ESers. Always proud to be an alum! I continue to live in Dar es Salaam, Tanzania, and this is my sixth year with The Nature Conservancy (TNC) — I am loving it. I’ve been engaging with fellow F&ESers and have been blessed recently to bump into a few more familiar faces.

“**Xiaoting Hou Jones** and I participated in four workshops organized by her organization (the International Institute for Environment and Development), funded by Science for Nature and

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People Partnership (SNAPP). These workshops, which ran for two years, looked at trade-offs and synergies around agriculture, food production, and forest conservation in sub-Saharan Africa, a critical topic for our region, which is trying to balance food production and forest conservation.

“It was a nice surprise to bump into **Stephen Wood ’11** at TNC offices in Nairobi, Kenya, and learn that he now advises TNC on issues related to soils.

“**Eliezeri Sungusia**, **Baruani Mshale ’08**, **Abdalla Shah ’05**, and **Geoffrey Mwanjelwa ’11** make up the small F&ES community in Dar es Salaam I interact with often. We rekindle our F&ES traditions once in a while (barbecues, happy hours, networking, and the like).

“Last year was particularly nice for me as, for the first time, TNC decided to have a country director, and I happened to be the first person to occupy that position. I am surrounded by good, intelligent, hard-working people and so am a happy fella.

“This year, my son, 16, made the 24 percent cut to participate in the Yale Young Global Scholars summer academic enrichment and leadership program for outstanding high school students. As if that was not enough, he secured \$5,000 (out of \$6,250) to cover full tuition, including boarding, for the two weeks he will be in New Haven. I could not ask for more and count my blessings. I hope they get to enjoy Pepe’s Pizza and explore the ingenious work of what F&ES is today!

“Last but not least, I know some of you pass by Dar (that is what we call our city), so please let us know of your presence so we can host you in F&ES style.”

Casey Ruth Pickett writes: “New Haven is home for **Anna Ruth Pickett** and me and our two kids, Tusker and Haven, who just turned 8 and 6 this week. Tusker wants to be a farmer, but maybe not to be famous because it would be a hassle to always have to stop and sign autographs. And Haven wants to be a basketball player, and Batman, and to stop climate change. We are raising our kids

alongside the **Holmes/Neumans**, the **DeCews**, the **Elickers ’09**, the **Freibergs**, the **O’Rourke/Horotans**, and the **Reed/Nixons ’08**. Life is fulfilling in New Haven! New breweries, gyms, and restaurants keep popping up. And the music scene is alive. Let us know when you come visit!”

Hui Rodomsky writes: “My husband and I welcomed our son early this year. Our toddler daughter is especially excited about the new baby! I started a new position with the Oregon Department of Land Conservation and Development, headed by **Jim Rue ’83**. I am serving local jurisdictions on Oregon’s south coast, assisting them with land use issues. At my first staff meeting with the department, I had the pleasure of witnessing Jim getting pied in the face.”



Oregon Department of Land Conservation and Development Director Jim Rue getting pied because his office won the food drive.

Daniella Aburto Valle writes: “I reinvented my life, taking on some big changes over the past two years: I moved to Australia, switched from big corporate to a tech startup, and — the most joyful change of all — became a mother.”

CLASS NOTES

11 CLASS SECRETARIES
Margaret Arbuthnot, marbuthnot@gmail.com
Lucien Bouffard, lbouffard@gmail.com
Elizabeth Friedlander, efrie.friedlander@gmail.com
Gabriel Mejias, gabrielmejias@gmail.com
Randal Strobo, rastrobo@gmail.com

Erin Clark writes: “I am now advocating on behalf of Montana’s wildest landscapes as the western Montana field director for the Montana Wilderness Association. One of my priority campaigns is the Blackfoot Clearwater Stewardship Act, which would add nearly 78,000 acres to the Bob Marshall Wilderness Complex. I’m still based in Missoula. Come visit!”

Erin Derrington writes: “Greetings, dear F&ES cohort – my how time flies. On October 1, 2018, I started my new position as the natural resources planning manager for the Office of Planning and Development for the Commonwealth of the Northern Mariana Islands. It was a particularly active typhoon season here in the Pacific and on October 25, 2018, Super Typhoon Yutu caused significant damage to the islands of Saipan and Tinian. With wind gusts exceeding 200 mph, we were lucky it wasn’t worse. Despite the challenges of recovery, we also now have an opportunity to incorporate resiliency discussions into the comprehensive sustainable development plan, which my office is producing. If you have any planning insights you’d like to share, or if you happen to make it out to visit or have interest in working in our lovely island chain, please drop me a line. Here’s to cocreating better tomorrows!” erind.opd@gmail.com

Gabriel Mejias writes: “Monica and I are still living in D.C. with our daughter, Andrea, who just turned 18 months! I’ve been at the International Finance Corp. working on environmental and social risk management for financial institutions



Gabriel Mejias with wife Monica and daughter Andrea.

and real sector clients. Monica works for an information technology firm providing survey tools for political campaigns. Come visit!”

12 CLASS SECRETARIES
Simon De Stercke, simon.destercke@aya.yale.edu
Naazia Ebrahim, naazia.ebrahim@aya.yale.edu
Alison Schaffer, schaffer.alison@gmail.com
Leigh Whelpton, leigh.whelpton@gmail.com

Howard Chang writes: “Hi, all! My wife, a School of Management graduate, and I just bought in Berkeley and are moving soon from San Francisco. Life is busy these days with a 15-month-old boy. He’s awesome and full of energy. I work at East Bay Community Energy, the community-choice energy provider to Alameda County.”

Soojin Kim writes: “I am based in Sacramento, California, and working remotely for a Korea-based intergovernmental organization, Asian Forest Cooperation Organization. I am happy to report that this job brings me back to the Asia region and actually I am writing this in Myanmar.”

Lakshmi Krishnan writes: “After working in a technical advisory body secretariat, I shifted back to India on April 1 and am looking for jobs in the climate change/natural resources space. At least it gave me the time to return to an old haunt – a forest where a part of my heart lies (Kanha), which is where I am sitting and writing this.”

Sameer Kwatra writes: “I am completing four years working on climate change and clean energy with the Natural Resources Defense Council; five years as the dad of a curious, energetic, delightful little girl; and seven years as a denizen of D.C., a city that offers incredible diversity and the option to live a full life without depending on personal cars. It is always a pleasure to meet with fellow F&ESers, so do get in touch if you are around.”

Daniela Marini writes: “Hi, all! I am wrapping up my dissertation in geography at the University of Colorado, Boulder, and I’ll be soon looking for academic or consulting jobs. In the last five years, besides hiking a lot, skiing, and dipping in hot springs, I’ve been working on agrarian transformations, toxicity, and race in Argentina. In particular, I’m looking at whiteness working in and through demands for food sovereignty in contestation of genetically modified soy agribusiness. I combine ethnographic methods with surveys and mapping. My project is aimed at supporting and informing emerging agroecological transitions as a political praxis for socio-environmental transformation.”

Jaimini Parekh writes: “After working as a legal fellow with Communities for a Better Environment, I am now an associate attorney with Earthjustice in its Northwest office. **Jon Smith** and I work together (though he is in New York), which is awesome! I am enjoying Seattle, and it reminds me of New Haven. I also recently adopted the sweetest pup, Milo, who is intelligent and reminds me that animals have emotions too!”



Jaimini Parekh and her dog Milo at the Seattle Arboretum.

Iro Altraide Sam-Woruka writes: “I am happy to reconnect with everyone! I am currently in the northern Virginia/greater Washington, D.C., area. Building on experience from previous years of managing projects in a variety of sectors, I recently took several certifications and now work as an information technology project manager for Unisys Federal Services. Boma is now 9 years old, and she’s still the most delightful kid you’ll ever meet! We always look forward to driving up to New Haven, Connecticut, where she loves to grill Gordon Geballe and Scott Rummage with endless questions. Hopefully we’ll stop by soon.”

Emily Schosid writes: “I’m still living the dream in Denver, riding my bike around parks and along rivers; playing with my stupid dog, Banjo; and running the Center for Sustainability at the University of Denver. My intern army is up to 50! It’s insane, to say the least. My tiny apartment still has room for guests, so give me a holler if you’re ever passing through town.”

Sarah (Uhl) Smith writes: “I’m still with Clean Air Task Force (catf.us), working on staving off catastrophic climate change by day and chasing around my curious toddler for what feels like all night. Seacoast New Hampshire is lovely in the summer – come visit!”

Sharon Smith writes: “I’m delighted to be moving to Bali, Indonesia, in June 2019 in order to continue my consulting work to tackle palm oil-driven deforestation. I support many of the largest buyers, traders, and producers of palm oil to implement their sustainability commitments and transform their supply chains. If you’re passing through Bali or living in the region, please reach out – am looking forward to building a new life and community there. And my villa will always be open to F&ES guests!”

13 CLASS SECRETARIES
Judith Ament, judith.ament@gmail.com
Adedana Ashebir, adedana.ashebir@gmail.com
Rebecca de Sa, rebecca.desa@aya.yale.edu
Laura Johnson, laura.a.johnson@aya.yale.edu
Victoria Lockhart, victoria.lockhart@aya.yale.edu

Catherine Doyle-Capitman writes: “In August 2018, I earned my Ph.D. in the human dimensions of natural resource management from Cornell University. My dissertation research focused on collaborative landscape conservation planning and was funded by the U.S. Fish & Wildlife Service. In September I got married in Millbrook, New York, to Ryan Lamb, whom I’ve known since I was 14 and who is a solicitor for the U.S. Department of the Interior. I loved having some of my wonderful F&ES friends there to celebrate with us. In November, after our honeymoon backcountry camping throughout the Southwest, I started a job as a presidential management fellow in the Washington, D.C., office of the U.S. Forest Service, where I am a social scientist within the forest system. Well, 2018 was a year for the books ... and thinking about all those activities makes me want to take a nap!”



Catherine Doyle-Capitman celebrated her wedding in September 2018 with friends from F&ES.

Brendan Guy and his wife, Kate, moved to London, where Brendan continues to work for the Natural Resources Defense Council on international climate policy, while Kate completes her DPhil in climate security and governance at Oxford University. They are enjoying travels across the isles and the continent and warmly welcome all visitors for a cuppa and cake at their flat nestled alongside Hampstead Heath in northwest London.

Vanessa Lamers writes: “I became a mom to a new little forester in October 2018 and just recently joined the board of the Potomac Riverkeeper Network, which covers Maryland, D.C., and Virginia watersheds. Would love to connect with local alums interested in a swimmable Potomac!”

14 CLASS SECRETARIES
William Georgia, william.georgia@gmail.com
Chetana Kallakuri, chetana.kallakuri@aya.yale.edu
Lin Shi, linshi@aya.yale.edu
Cary Simmons, cary.simmons@tpl.org
Karen Tuddenham, karen.tuddenham.yale@gmail.com

Austin Lord writes: “I am currently living in Nepal and conducting research for my Ph.D. in anthropology at Cornell University. My current work focuses on the social and political dimensions of post-earthquake recovery, disaster risk reduction, and infrastructure development in northern Nepal. I’ll be based in Nepal until May 2020 and then go back and forth between Ithaca and Washington, D.C., thereafter – let me know if you come through Kathmandu!”

Lily Sweikert writes: “Has it really been five whole years?! My how time flies! Well, I finished my Ph.D. late 2017 and relocated to D.C. in August 2018. I am currently an American Association for the Advancement of Science science and technology policy fellow hosted by the U.S. Agency for International Development. I would love to connect with other alumni staying in or passing through the D.C./Maryland/Virginia area! I hope you’re all doing well!”

15 CLASS SECRETARIES
Akiva Fishman, fishman.akiva@gmail.com
David Gonzalez, david.j.x.gonzalez@gmail.com
Philip Kunhardt, pbkunhardt@gmail.com
Frances Sawyer, frances.sawyer@gmail.com
Eric Vermeiren, EricVermeiren@gmail.com

Jess Scott writes: “As an Empire fellow (with fellow F&ESer **Mikael Cejtin** ’13) on New York Gov. Cuomo’s environmental team, I recently helped ban plastic bags statewide!”

16 CLASS SECRETARIES
Mohammad Aatish Khan, mohammadaatish@gmail.com
Nicholas McClure, nick.mcclure@gmail.com
Paloma Caro Torres, pfcaro@gmail.com
Mariana Vedoveto, mari.vedoveto@gmail.com
Lisa Veliz Waweru, lisa.v.waweru@gmail.com

Stefanie (Wnuck) Keohane writes: “I am enjoying digging in on electric utility regulation and energy policy issues working at the Connecticut Public Utilities Regulatory Authority. My husband, Ryan, and I are also thrilled to welcome our first baby this summer!”

Fairuz Loutfi writes: “In March 2019, a group of F&ES students visited Mexico City as part of a field trip. **Lucia Ruiz** ’13 organized a dinner for current F&ES students and fellow alumni at Restaurante Covadonga, and we had a great time.”



Lucia Ruiz organized a dinner with F&ES students and alumni in Mexico City.

Sabrina Szeto writes: “I will be moving to Munich, Germany, in June 2019 and will miss the F&ES community in New Haven very much. It has been a joy working with students and applying geospatial analysis toward land management and conservation goals these past three years. Looking forward to connecting with F&ESers based in Europe in the future!”

17 CLASS SECRETARIES
David McCarthy, DavidEdwardMcCarthy@gmail.com
Rebecca Shively, rebecca.shively@gmail.com
Emily Wier, emily.wier@gmail.com
Farrukh Zaman, rmfarrukhzaman@gmail.com

Laura Hammett writes: “I’ve been living in Bangkok, Thailand, for the past year, where I have been working on climate adaptation programming with the U.N. Development Programme. It would be great to see other classmates who are living in or passing through the region!”

Will Koh writes: “After studying food systems and industrial animal agriculture at F&ES, I’m currently focused on defining concepts of sustainable diets that consider public health outcomes from food consumption and environmental changes from food production. I am a researcher in the Nutrition Department at Harvard’s School of Public Health (HSPH), focused on the emerging field of planetary health nutrition. In mid-April, I am going to embark on a multi-month research trip to Kiribati to study how the health of coral reefs impacts fisheries and local seafood intake. This fall, I’ll start the M.P.H. program in nutrition at HSPH with a focus on planetary health.”

Kevin Terry Lee writes: “I just moved to the San Diego area, where I now serve as the environmental impact and compliance specialist at Dr. Bronner’s – known for its peppermint soaps and regenerative organic agriculture efforts. I live two blocks away from the beach and invite anyone to visit!”

18 CLASS SECRETARIES
 Nikola Alexandre, nisalexandre@gmail.com
 Eve Boyce, evedboyce@gmail.com
 Caroline Hobbs, crlnhobbs@gmail.com
 Katherine Richard, ka.c.richard@gmail.com
 Weiyang Zhao, china.wyz@hotmail.com
 Santiago Zindel, santiago.zindel@yale.edu

Caitlin Chiquelin writes: “I was married in late March with my F&ES classmates by my side. In fact, **Kevin Dahms** was the officiant, and **Holly McLaughlin** caught my bouquet!”

Annie Guo writes: “I can’t believe it’s almost been a year since I was at F&ES. Since graduating, I’ve had the good fortune to work alongside three F&ESers at two different jobs (both I’d consider to be dream jobs). And I feel gratified to be in close contact with a number of folks who made my time at F&ES the amazing experience it was.”



Annie Guo with members of the Class of 2018.

Yishen Li, Daniela Rossi, and Laurel Low write: “Strong ties built at F&ES continue to flourish at our workplace! How incredible and fortunate it is for us three to become colleagues again at the Environmental Protection Agency Office of Wetlands, Oceans, and Watersheds through the same Oak Ridge Institute fellowship program! **Dani** and **Laurel** work for the Partnership Programs branch to facilitate on-the-ground conservation and restoration efforts with local and regional stakeholders through the National Estuary and Urban Waters programs. **Yishen** supports the Hypoxia Task Force to help reduce nutrient

pollution and promote sustainable agricultural practices in the Mississippi River basin, ultimately remediating the Gulf of Mexico’s dead zone.”

Hannah Peragine writes: “Like Cait, I was also recently married. Paul and I celebrated a year of marriage in May and have been navigating the joys and heartbreaks of being foster parents. I am thrilled to have returned to F&ES as your dedicated development and alumni services officer! I look forward to magnifying the impact of F&ES alumni in the world by connecting you all to one another. Join Alumnifire, and come to reunion (October 11–13)!”



F&ESers braved the cold and damp to celebrate love with Hannah Peragine in May 2018.

REUNION 2019

SAVE THE DATE **October 11–13**

IN MEMORIAM

John O. Batson '50 M.F. (1925–2019) passed away on February 5, 2019, in Todos Santos, Baja California Sur, Mexico. Inducted into the Mississippi Forestry Hall of Fame in 2011, Batson was a lumber industry veteran whose ambition and love of adventure took him around the southern U.S. and the world. According to local legend, Batson came to the attention of the Hammond, Louisiana, business community when he walked into Citizens Bank to open an account carrying a briefcase filled with a million dollars in cash. Batson was one of the first in the industry to hire a woman as a sawmill manager and to set up a pension plan for his sawmill workers.

Batson is survived by his six children – John O. Batson III of Lake Oswego, Oregon; Molly Batson Smith of Atlanta, Georgia; Florence Blair Batson of Jackson, Mississippi; Bryan Batson Jauregui of Todos Santos, Mexico; Andrew Batson of Seattle, Washington; and Virginia Batson of Collingswood, New Jersey – and his four grandchildren – Bryan Smith of Athens, Georgia; Annie Smith of San Francisco, California; and Griffin Batson Grant and Tristan Batson Grant of Collingswood, New Jersey.

Lester Bradford '51 M.F. (1926–2019) passed away on March 3, 2019, in Mount Vernon, Washington. Bradford grew up on a farm in Maine where his family farmed with horses and oxen. A tail gunner and a librarian under the Army Specialized Reserve Program, Bradford took advantage of the GI Bill to attend Yale for his bachelor’s in natural sciences and master’s in forestry. At Yale, he met and fell in love with a young doctor, Winifred Ruth Smith. When the need for a doctor opened in Sierra Leone and Winnie went, Bradford took a special course for missionaries in agriculture at Cornell University, made a case to the mission board, and crossed the ocean by freighter to marry her. They had five children in Sierra Leone and returned to the U.S. in 1968, whereupon Bradford earned his doctorate of education from Louisiana State University. The family moved to Mount Vernon, Washington, but continued to travel the world. The family lived and worked in Juba, Khartoum, Sudan, Peshawar, and Pakistan, and after retirement Bradford traveled overseas to perform volunteer jobs in Zimbabwe, Bolivia, Brazil, the Ukraine, Indonesia, and Haiti.

Bradford was an avid hiker and polyglot (speaking French, Spanish, Latin, German, Kono, Mende, Krio, and Russian). His obituary on Legacy.com informs readers that “Lester lived a life guided by his spirit of love, kindness, humor, and infinite curiosity, which affected all who had the privilege of knowing him.” Peter Arnold '51 writes: “Lester’s accomplishments in the fields of forestry and agroforestry are, in my opinion, the most outstanding of any of our class, indeed of all alumni.”

Bradford is survived by his wife, Winifred; sister, Carolyn Williams; brother, Kenny; and children Dorcas Lee, Julie Ann, Ethan Robert, and Melinda Grace (predeceased by Joel Everett).

The Rev. Dr. Garnet Brown '64 M.F. (1935–2019) passed away on January 19, 2019, in Jamaica. A recipient of the F&ES Alumni Association Board Distinguished Alumni Award, Brown serves as a prime example of the F&ES commitment to train professionals to go back to their countries and – by their excellence and the force of their convictions – establish sustainable development based on an ethic of land stewardship.

Brown was an advisor to prime ministers and represented Jamaica on the international stage. As a senior consultant to the United Nations Development Programme and the World Bank, he founded the Rural Management and Training Institute in Nigeria, which is still called “Garnet Brown’s building.” A dedicated public servant in his homeland of Jamaica, Brown founded the

Natural Resources Conservation Authority and served as chairman of the National Irrigation Commission as well as in high posts in the ministries of agriculture, forestry, water, and mineral resources. Brown brought entrepreneurial creativity to his public service, during which he inaugurated a highly successful program of reclamation at bauxite mining sites, initiated a rural electrification program through a private-public collaboration, reorganized the Forestry Department, and founded the Rural Agricultural Authority.

Through it all he never forgot his roots at F&ES – he returned as a visiting professor in 1979–80 to organize and lead a spectacular faculty/student field trip to Jamaica. The trip was one of the first to provide an integrated approach to natural resources, including wildlife, marine, and montane ecosystems.

In 2013, Brown received the Order of Jamaica, the nation’s fifth highest honor, for exceptional and exemplary service in agriculture. Brown was educated at the University of New Brunswick, the Caribbean Graduate School of Theology, and Oxford University in addition to the Yale School of Forestry.

Brown was in his 14th year of ministry in the Methodist Church in the Caribbean and the Americas. He previously served the Church of God in Jamaica from 1983 to 2004.

Dr. Amanda Moss Cowan '07 M.E.M. (1961–2019) passed away on February 20, 2019, in Providence, Rhode Island. Cowan was born in Memphis, Tennessee. She was an assistant professor of management at the University of Rhode Island College of Business Administration. She earned her doctorate in management at Oxford University, with a focus on organizational theory and strategy. Cowan was fascinated by the intersection of business and the natural environment and concentrated her research in this area. Prior to completing her doctorate, she earned a master’s degree at Yale School of Forestry & Environmental Studies. She also has degrees from East Tennessee State University and the University of Illinois. Before embarking on a career in academia, she worked as a restaurant chef, a technical writer, and a computer programmer.

Paul M. Haack '61 M.F. (1926–2019) passed away on April 8, 2019, in Orlando, Florida. Haack was a sergeant in the U.S. Army. He was born in Milwaukee, Wisconsin, and attended Rufus King High School before enrolling at the University of Minnesota, where he received a bachelor’s degree in forestry/wildlife, and the Yale School of Forestry, where he received a master’s in forestry. Haack spent most of his life outdoors, working as a research statistician for the U.S. Forest Service and the U.S. Fish & Wildlife Service. He was elected as a fellow to the Explorers Club for his dedication and service to this cause.

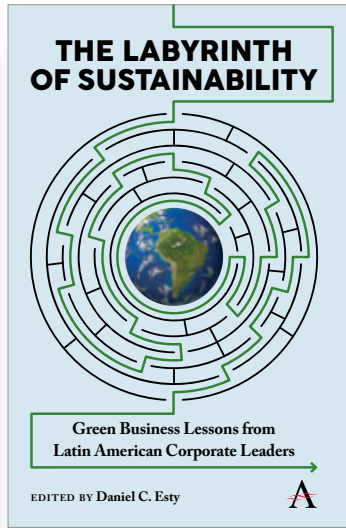
Haack enjoyed canoeing and made several annual trips to Canada and Alaska. He is survived by his wife, Kathy; his son; two grandsons; and a great-granddaughter.



Ospreys: The Revival of a Global Raptor

by Alan F. Poole
Johns Hopkins University Press (2019)

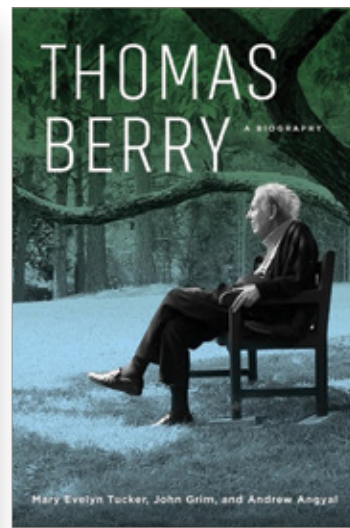
Ospreys are one of the few bird species found throughout the world, but not so long ago these magnificent birds were under threat of extinction. During the 1950s and '60s, scientists linked the decline of osprey populations to the widespread use of DDT and other pollutants, before conservation and species resilience brought them back. In a new book, Alan Poole '76 M.F.S. — one of the nation's foremost experts on ospreys — has written a lyrical exposé of these creatures, describing their daily habits and exploring their relationship with the environment. The illustrated book chronicles the bird's migratory habits, its vital role in coastal ecosystems, and its remarkable recovery.



The Labyrinth of Sustainability: Green Business Lessons from Latin American Corporate Leaders

edited by Daniel C. Esty
Anthem Press (2019)

Businesses across Latin America have increasingly integrated sustainability principles into their corporate cultures. "The Labyrinth of Sustainability" capitalizes on this trend, offering a collection of case studies generated through the Latin American Corporate Sustainability Analysis project, an initiative convened by the Yale Center for Environmental Law and Policy in conjunction with partner institutions in Latin America. In an introduction, Daniel Esty, Hillhouse Professor of Environmental Law and Policy at F&ES, argues for what he calls the sustainability imperative, the notion that businesses must work toward sustainability to be successful in today's marketplace.



Thomas Berry: A Biography

by Mary Evelyn Tucker,
John Grim, and Andrew Angyal
Columbia University Press (2019)

Thomas Berry (1914–2009) was one of the 20th century's most prescient and profound thinkers. As a cultural historian, he sought a broader perspective on humanity's relationship to the earth in order to respond to the ecological and social challenges of our times. This first biography of Berry illuminates his remarkable vision and its continuing relevance for achieving transformative social change and environmental renewal. The book, which will be published in June, was co-authored by Mary Evelyn Tucker and John Grim, senior lecturers and research scholars at F&ES and co-directors of the Yale Forum on Religion and Ecology, along with Andrew Angyal. Tucker and Grim worked closely with Berry for more than three decades.



The Palgrave International Handbook of Women and Outdoor Learning

edited by Tonia Gray and
Denise Mitten
Palgrave Macmillan (2018)

Women often pursue careers in the outdoors to lead and teach in natural environments, hopeful that excellence supersedes age, gender, socioeconomic status, disability, or ethnicity. Research and collective experience, however, suggest that many women feel marginalized and undervalued. "The Palgrave International Handbook of Women and Outdoor Learning," co-edited by Denise Mitten '77 M.F.S., celebrates the knowledge of female practitioners, featuring women scholars from many fields — including experiential outdoor education, adventure education, adventure therapy, and gender studies. It also explores the implications of emerging research and practice using poignant examples from its subjects' own disciplines.

REFLECTIONS OF A BEAVER BELIEVER



ISTOCKPHOTO.COM/CSA IMAGES

Ben Goldfarb '13 M.E.M. had just graduated from Yale when it occurred to him that his conception of what makes a healthy landscape was completely wrong. But then again, that's true of most contemporary Americans, he says. Why? Because most of us can't comprehend what North America looked like before fur traders arrived, trapping millions of beavers from the continent's rivers and lakes.

In his book, "Eager: The Surprising, Secret Life of Beavers and Why They Matter," which recently won the 2019 PEN/E.O. Wilson Literary Science Writing Award, Goldfarb makes the case that the near eradication of these once ubiquitous rodents had a profound impact on the continent's landscapes and ecosystems. We recently spoke with Goldfarb, who described the vital role of these "ecosystem engineers"; how a growing coalition is trying to restore their populations; and how they can help humankind fight drought, improve water quality, and even address climate change.

— KEVIN DENNEHY

Why did you decide to write about beavers?

Like most people who have spent a lot of time outside, I've always had some baseline interest in beavers. But I didn't really become a "beaver believer" — as we beaver lovers call ourselves — until a few years back. After graduating from F&ES, I was living in Seattle, where I was able to spend some time with a Forest Service biologist named Kent Woodruff. At the time Kent was director of the Methow Beaver Project in central Washington, which live-traps "nuisance beavers" — animals that are blocking up culverts, flooding yards, or cutting down trees. The project relocates those beavers to headwater streams high in the Okanogan-Wenatchee National Forest. The idea is that up there the beavers can create fantastic wildlife habitat and store water without damaging private property.

I realized that my mental model of what aquatic ecosystems should look like omitted beavers. I started to realize that beavers are a really important landscape-scale actor in North America and that I needed to revise my conception of a healthy stream to include these incredible rodents.

What lessons can humans learn from beavers as we try to address our own environmental challenges?

To me the fundamental lesson of beaver restoration, and of the book, is the importance of working with nature rather than against it. As a species, our inclination is to dominate nature — to channelize streams, pave over wetlands, and clearcut forests. One of the mantras of those who work in beaver restoration is "let the rodent do the work." This animal can provide us a huge amount of help — storing water, improving water quality, creating wildlife habitat, even sequestering carbon — if we learn to work with it, to coexist with it, to outsource some of our labor to it. Rather than dominating the natural world, beaver work is really about cooperating with it. Beaver restoration suggests a new approach to ecological restoration in general — one that is more holistic and in tune with the natural world.

READ THE FULL INTERVIEW ONLINE: yalef.es/beaver

CANOPY

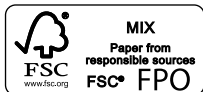
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