

CANOPY

SPRING 2021

FANNING OUT ACROSS THE GLOBE IN SEARCH OF BIG CATS

YSE student research on cats
is yielding important information
on their conservation value.

Page 26

Yale SCHOOL OF THE ENVIRONMENT

Alumni and Friends:


This month, we are tentatively emerging from the long hibernation of the pandemic with great hopes for an upcoming season in which we can roll up our sleeves to once again work together in person on behalf of our environment.

Even during this apparent hibernation, though, our students, alumni, faculty, and staff have leveraged our community's creativity and resilience to accomplish some remarkable things, some of which you will read about in this issue of *Canopy*.

In both fall and spring, "pods" of our students lived and worked together at Yale-Myers for several weeks, able to take campus classes remotely while building both a sense of community and a sense of place in the woods – the hallmark of our School's legacy. Our alumni and faculty have remained deeply engaged in our mission of creating and implementing solutions to environmental challenges – on page 18, you will read about a pathbreaking new gift to Yale that will engage our faculty with others across campus to develop natural carbon solutions. Several YSE alumni have been appointed to governmental leadership posts to move conservation and climate change policy forward, an especially exciting example of the leadership our alumni are bringing to efforts to achieve a sustainable future. Current doctoral students are studying the biology and conservation of big cats in the world, using their field data to pivot this year to digital analyses. And finally, our faculty are on the cutting edge of studying how and why renewable technologies are adopted by individuals, to better plan for policies and markets that can guide utilities and energy companies to ensure a future with more widespread deployment.

Several weeks ago, we welcomed 124 new graduates to the community of more than 5,300 YSE alumni who are living and working in 80 countries around the world. Every year, I'm inspired by our graduates – by their scholarship and their commitment to protecting and preserving our planet. This year, with the many challenges our students have had to overcome, I have been truly awed by what they achieved. I can't wait to see what they'll achieve as YSE alumni.

The resilience and optimism of our community, and our collective determination to meet the urgent environmental challenges we are facing, is all the inspiration I need to be excited about our future here at YSE.


Indy Burke
Carl W. Knobloch, Jr. Dean

CANOPY

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Nyanpo Yitse in the Qinghai-Tibetan Plateau in northwest China is known for its diverse habitat and alpine flora and fauna, including the endangered snow leopard. See full story on page 26.

IN THIS ISSUE

News & Notes	2
Research Updates	6
Profile: <i>Valuing Connecticut's Unrecognized Environmental Leaders</i>	8
<i>YSE Alumni: Helping to Define the Environmental Agenda</i>	10
Bookshelf	16
<i>Natural Climate Solutions: A YSE-Wide Focus</i>	18
<i>Fanning Out Across the Globe in Search of Big Cats</i>	26
Commencement 2021	33
A Commencement Mortarboard Retrospective	34
Class Notes	36
In Memoriam	56
Endnote: <i>Solar in the American Mind</i>	60



The founding mothers broke ground in West Rock on the New Haven Botanical Garden of Healing Dedicated to Victims of Gun Violence in Spring 2019.

URBAN RESOURCES INITIATIVE

NEWS & NOTES

New Haven Moms, URI Show the Healing Power of Community Forestry

The Urban Resources Initiative (URI), a program associated with The Forest School at YSE, has helped to establish the New Haven Botanical Garden of Healing Dedicated to Victims of Gun Violence, which was inspired by a group of mothers in the city whose loved ones have been killed.

At the opening of the garden is a large engraved memorial stone that states: “We do this in loving memory of you.” The stone lists the names of the moms who established it, including Marlene Miller Pratt, who found respite at Yale’s Marsh Botanical Garden after her son was killed in New Haven.

The Marsh staff introduced Pratt to URI and she, along with three other mothers who have lost family members, worked together to create the healing garden. A walkway made of bricks is engraved with the names of those who have died in New Haven by gun violence.



Visitors to the garden can follow a walkway made of bricks that are engraved with the names of more than 600 victims of gun violence in New Haven.

COLLEEN MURPHY-DUNNING

LEADERSHIP COUNCIL 2021

Data Science Highlighted at Leadership Council

The increasingly important role of data science at YSE was the focus of YSE’s Leadership Council’s virtual meeting April 23.

Dean Indy Burke gave a “State of the School” update and Os Schmitz, Oastler Professor of Population and Community Ecology and senior associate dean of research, hosted a TED style panel featuring 10-minute presentations by Dan Esty, Eli Fenichel, Jennifer Marlon, and Karen Seto, who each leverage data science in novel ways to inform environmental policy and practice.

Schmitz kicked off the presentations with a chart showing the exponential growth of stored information, from the earliest example of writing to the printing of the Gutenberg Bible and through to the present day.

“We have a competitive advantage at the School because we have several domains of expertise that we can bring to bear,” Schmitz said. “What we need to do now with the data is bring these domains of expertise to cohere and provide a comprehensive understanding of the natural world.”

Dean Burke agreed: “At YSE we bring data to meaning and meaning to environmental decision-making.”



Anthony Leiserowitz speaks in Hartford, Connecticut in 2019 on the climate crisis.

COURTESY OF THE CONNECTICUT FORUM

Leiserowitz Named Top Climate Scientist

Anthony Leiserowitz, founder and director of the Yale Program on Climate Change Communication (YPCCC), has been ranked second on the Reuters “Hot List,” a system of identifying and ranking the 1,000 most influential climate scientists from around the world. An expert on the public perception of climate change and environmental beliefs, attitudes, and behavior, Leiserowitz was recognized for publishing 135 research papers on topics related to climate change; how often those papers were cited by peer researchers; and how often the findings were cited in the press, on social media, and in policy papers. Leiserowitz is the host of “Climate Connections,” a daily radio program broadcast on more than 600 frequencies nationwide, and last year was named the winner of Climate One’s prestigious Stephen H. Schneider Award for Outstanding Climate Science Communication.

Eleanor Stokes Named Rising Star for Leading Role in Nighttime Satellite Imagery Project

Eleanor Stokes ’18 PhD, a senior scientist and lead of strategic operations for the Universities Space Research Association, has been named one of *Geospatial World’s* 50 Rising Stars for her work on Black Marble, NASA’s first nighttime light dataset, which provides insights on human settlements and the interactions between urban activities and the environment.

As co-leader of Black Marble, Stokes helped to develop methodologies and applications for data from the Visible Infrared Imaging Radiometer Suite nighttime sensor aboard NASA’s Suomi NPP satellite spacecraft.

“Humanity is facing major global risks right now from extreme weather and sea level rise,” says Stokes. “It’s very important to have a satellite record that can speak to the human piece of the puzzle.”

Environmental Politics Expert with a Focus on Forests and Climate to Join YSE Faculty

Luke Sanford, whose research examines environmental stewardship from a political science perspective, has been named assistant professor of environmental policy and governance at YSE beginning July 1.

Sanford, who earned his PhD at the University of California San Diego, has created methods for integrating data sources such as satellite imagery into causal inference frameworks in his study of environmental politics.

“Professor Sanford’s skills in using empirical and statistical data and his focus on the intersection of forests, climate, and politics will advance our scholarship in this emerging field and align perfectly with our emphasis on utilizing environmental data science in all areas of focus,” says Dean Indy Burke. “We’re very pleased to welcome him to the YSE community.”



Luke Sanford will join the faculty July 1.

COURTESY OF LUKE SANFORD



Yale Hosts New Horizons in Conservation Conference

YSE hosted the New Horizons in Conservation Conference in April spearheaded by Environmental Justice Professor Dorceta Taylor ’85 MFS, ’91 PhD. The conference draws students and early-career professionals who are historically underrepresented in the environmental field as well as those committed to diversity, equity, and inclusion.

Taylor, whose watershed 2014 study on the state of diversity in nearly 200 U.S. environmental organizations brought into focus the staggering lack of people of color in the field, said the conference is aimed at helping to develop pathways for broader participation and representation in environmental work.

“The students and young professionals who attended this conference are multicultural, multifaceted, and talented, and they are poised to take on leadership roles in this sector,” she said.

YSE Environmental Justice Professor Gerald Torres; Narashima Rao, assistant professor of energy systems analysis; and more than a dozen speakers were highlighted at the conference held April 18–20.



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RESEARCH UPDATES

Turning Wood into Plastic

Efforts to shift from petrochemical plastics to renewable and biodegradable plastics have proven tricky — the production process can require toxic chemicals and is expensive, and the mechanical strength and water stability are often insufficient. But researchers have made a breakthrough using wood that shows promise for producing more durable and sustainable bioplastics.

A study published in *Nature Sustainability* co-authored by Yuan Yao, assistant professor of industrial ecology and sustainable systems, outlines the process of deconstructing the porous matrix of natural wood into a slurry that features nanoscale entanglement and hydrogen bonding between the regenerated lignin and cellulose micro/nanofibrils. Researchers say the resulting material shows high mechanical strength, stability when holding liquids, and UV-light resistance in addition to a lower environmental impact as it can be recycled or safely biodegraded in the natural environment.

“There are many people who have tried to develop these kinds of polymers in plastic, but the mechanical strands are not good enough

to replace the plastics we currently use, which are made mostly from fossil fuels,” says Yao. “We’ve developed a straightforward and simple manufacturing process that generates biomass-based plastics from wood, but also plastic that delivers good mechanical properties as well.”

To create the slurry, researchers used wood powder, a processing residue usually discarded as waste, and deconstructed its loose, porous structure with a biodegradable and recyclable deep eutectic solvent (DES). The resulting mixture has a high solid content and high viscosity, which can be casted and rolled without breaking.

Yao also led a comprehensive life cycle assessment to test the environmental impact of the bioplastic against common plastics. Sheets of the bioplastic were buried in soil, fracturing after two weeks and completely degrading after three months; additionally, researchers say the bioplastic can be broken back down into the slurry by mechanical stirring, which also allows for the DES to be recovered and reused.

The Dirt on Crop Insurance

The increasing frequency and severity of droughts could drop corn yields in the U.S. by as much as 80%, which will mean tens of billions of dollars in insurance payments to farmers. A Yale research team, led by Professor of Soils and Ecosystem Ecology Mark Bradford and doctoral student Dan Kane, argues in *Environmental Research Letters* that to determine premiums, insurance companies should focus less on crop yields from past years and instead incorporate soil types and management practices to estimate expected yields. Because soil organic matter is associated with improved soil water infiltration and retention, the team says, soils high in organic matter have the potential to buffer crop yield risk against drought. Using USDA data, the researchers found that increasing soil organic matter by 1 percent decreased average drought liabilities for insurance companies by 36% while also increasing corn yields.

Electronic Waste on the Decline

A study led by the Center for Industrial Ecology and published in the Yale-based *Journal of Industrial Ecology* found that the total mass of electronic waste generated by Americans has been decreasing since 2015. The decline in the use of large cathode-ray tube televisions and computer monitors is thought to be the biggest contributor, the authors say. This decline may require a rethinking of current e-waste recycling regulations, which were created in an effort to reuse rare materials found in many of the electronics we use, like smartphones. “This is a very important finding that cuts against the widely held idea that e-waste is the fastest growing waste stream,” says Reid Lifset, the editor-in-chief of the *Journal of Industrial Ecology*. “It shifts our understanding of the problem with e-waste.”



LOVESILHOUETTE / ISTOCK.COM

Tracking Mosquito Movement

A Yale-led research team has developed a new method of tracking the yellow fever mosquito as it moves through the environment, combining genetic data from the mosquitoes and environmental data from satellites. The authors mapped landscape connectivity — how a landscape facilitates the movements of organisms and their genes across large areas — which will be useful in designing more strategic releases of genetically modified mosquitoes, a cutting-edge method of disease control. “By integrating machine learning with an optimization process, our approach overcomes constraints of previous methods and should be helpful for more precise planning of vector control actions,” says Giuseppe Amatulli, a research scientist at YSE and Yale’s Center for Research Computing. The authors also believe this novel advance could have broader applications, including in conservation and environmental protection.

Valuing Connecticut's Unrecognized Environmental Leaders

Ashley Stewart is inspired to change the communities in her home state by building on the previously unrecognized work of Black women in grassroots environmental activism.

BY MARIA P. GONZALEZ
PHOTOGRAPHY BY CLOE POISSON



Ashley Stewart restocks the Pink Pantry located at the community garden on Zion Street in Hartford. The pantry was established by Summer of Solutions Hartford, a youth-led urban farming nonprofit.

“The work of Black women has often gone unnoticed or unrecognized [in Connecticut]. I want to create a new history.”
— ASHLEY STEWART

Growing up in the suburbs of Hartford, Connecticut, Ashley Stewart ’21 MESC was shaped as much by the urban environment as she was by the rivers and trails in the nearby natural environment. She thanks her mother for that grounding.

“I remember I was really into the nature center; I wanted to be there all the time,” says Stewart. “My mom must have known something because she began looking for anything that tilted that way.”

That active and curious child grew into a teen who more purposefully sought the outdoors, even spending one memorable summer learning about water quality along Connecticut’s Farmington River. It was a place she would grow to know well as a civil engineer with the state’s Department of Energy and Environmental Protection, inspecting and managing dam removal and statewide repairs.

Now at the Yale School of the Environment (YSE), Stewart is a fellow in the Hixon Center for Urban Ecology and a recipient of the prestigious Switzer Environmental Fellowship. She has focused her research on the role of Black women as grassroots environmental leaders in urban areas whose work, she has found, has mostly gone unappreciated.

“My mother was an advocate,” says Stewart, recalling helping her mother with canvassing efforts in Hartford’s South End, fighting for equality in housing, education and food access for marginalized communities. “The work of Black women like her has often gone unnoticed or unrecognized. I want to create a new history.”

Stewart shifted from engineering work to attend YSE, she says, to study ethics and morals: Why is there a lack of value for women in my field? Who is doing the work of valuing Black communities? How can we respect the work of those engaged in grassroots activism today?

“Black women have played a large role in guiding, advocating, and protecting the community as best they can from a grassroots perspective,” Stewart says. “Most community activists tend to be women — and often are mothers. In the conversations I’ve had with people, even those who don’t have kids, they want to protect and care for not just ourselves and our children but our community as a whole.”

Urban land, Stewart explains, is often valued by its potential for development, not for what — or who — is currently there. She sees her work as an opportunity to elevate the oft-unacknowledged voices that are protecting and driving vision for community.

“Ashley has focused her research on how Black women in Connecticut transcend institutional and cultural barriers to demand environmental justice for their communities,” says Amity Doolittle, senior lecturer at YSE and faculty director of the Urban Resources Initiative. “By recognizing and celebrating their integral role in righting environmental wrongs through their everyday leadership and care for their communities, this research is adding richness to our current understanding of environmentalism in the U.S.”

As she pushes forward, Stewart is also guided by the insight of local teens she mentors. And what she hears from them is not always positive — Hartford is one of the most diverse cities in the state but also one of the poorest. Issues of the environment are seen as matters of rural enclaves, not the urban areas drivers buzz past on the highways.

That disconnect only inspires Stewart further.

“We need to talk about the hard things; that is the only way to move toward the next steps,” she says. “That is something I have learned from my mother and from women like her across Connecticut.”

YSE Alumni: Helping to Define the Environmental Agenda

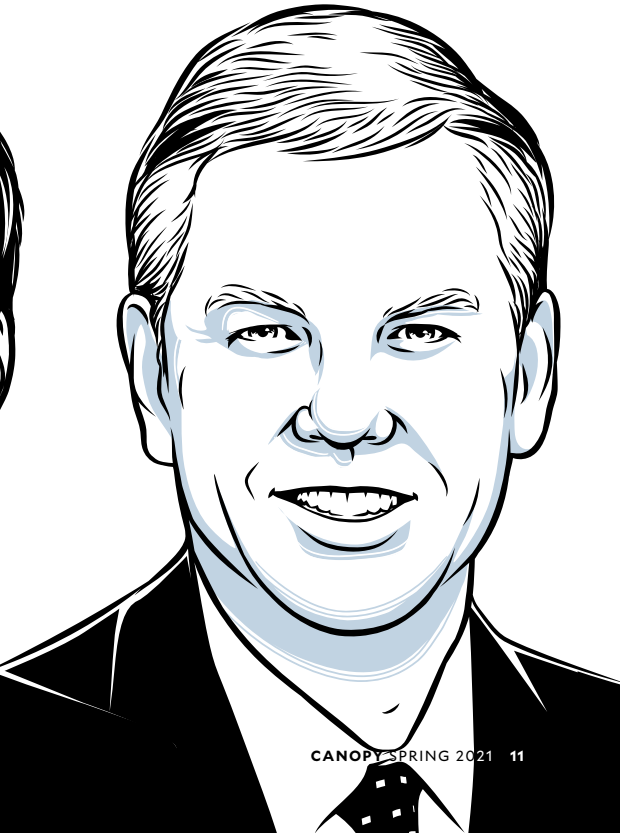
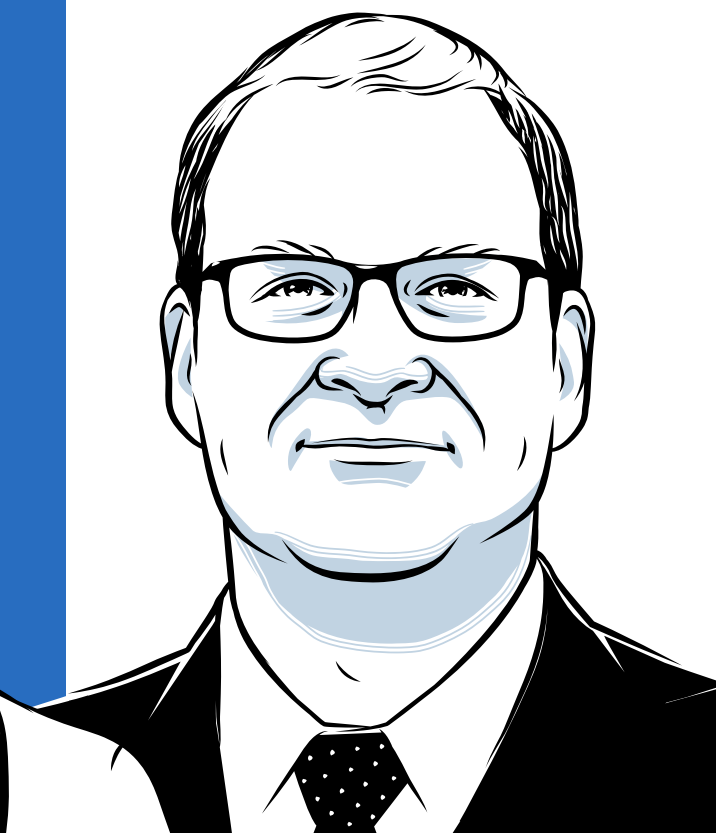
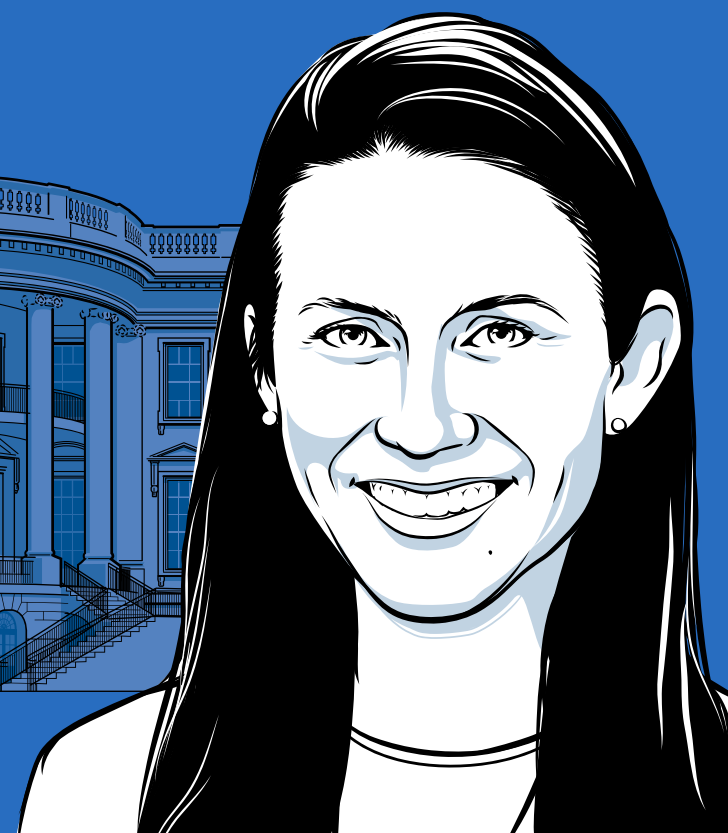
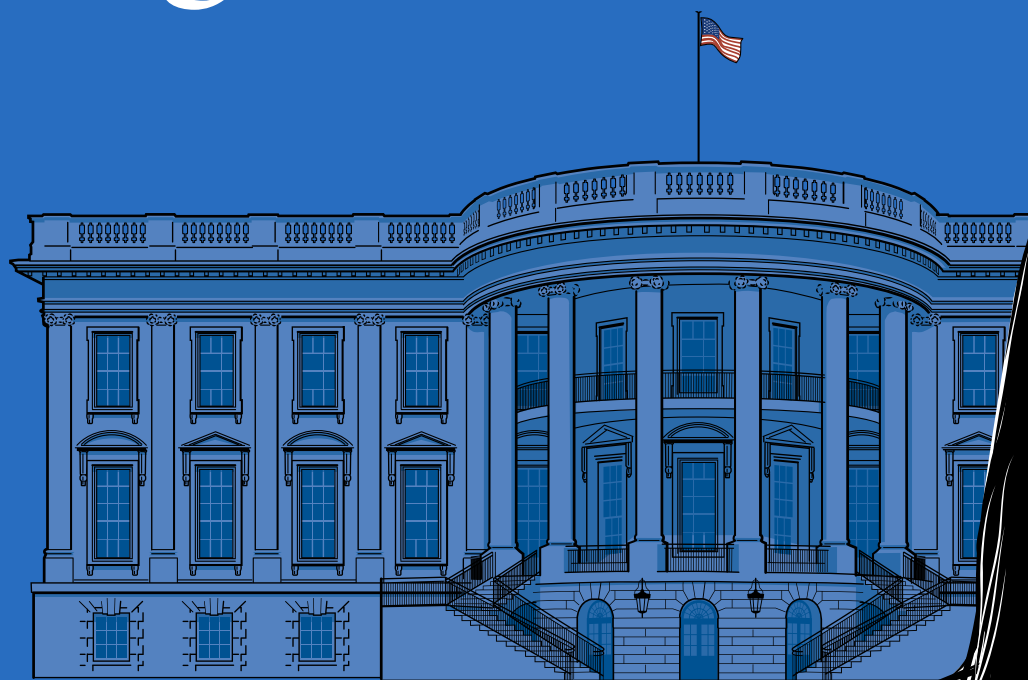
Since taking office, President Joe Biden has laid out an ambitious environmental agenda. These four YSE alumni are helping him make it happen.

BY DYLAN WALSH '11 MEM
ILLUSTRATIONS BY
PATRICK WELSH

Joseph R. Biden was sworn in as the 46th president of the U.S. at noon eastern time on January 20, 2021. Within a few hours he had rejoined the Paris Agreement, revoked permits for the Keystone XL pipeline, placed a moratorium on drilling in the Arctic National Wildlife Refuge, established an “immediate review” of many of the former administration’s environmental policies, and tasked an interagency working group with more accurately defining the social cost of carbon.

Seven days later he signed an executive order proposing “a clean energy revolution that achieves a carbon pollution-free power sector by 2035 and puts the United States on an irreversible path to a net-zero economy by 2050.”

Four Yale School of the Environment (YSE) alumni have been appointed to federal posts that are integral to carrying out the Biden administration’s environmental agenda. Described below are their roles along with some of the tasks on their plates and challenges they will likely face.





MAGGIE THOMAS '15 MEM

Chief of Staff of White House Office of Domestic Climate Policy

Maggie Thomas has spent the past two years thinking and talking and writing about big-picture climate policy. She has worked with presidential candidates Elizabeth Warren and Jay Inslee. She helped to craft Inslee’s 218-page climate plan and was Warren’s lead climate staffer. She is also a co-founder of Evergreen Action, which revised and publicized Inslee’s plan.

In January of this year, Thomas got the remarkable opportunity — and considerable responsibility — of making these ideas reality: The Biden administration appointed her chief of staff of the new Office of Domestic Climate Policy. Thomas will report directly to Gina McCarthy, former head of the Environmental Protection Agency (EPA) and current White House national climate advisor.

“This is a really big deal: She’ll be following

through on Biden’s promise of an all-of-government response to climate change,” says Dan Esty, Hillhouse Professor of Environmental Law and Policy. “She will be on the phone every day corraling not just the usual suspects — the EPA, the Department of Energy — but also Pete Buttigieg at the Department of Transportation and Janet Yellen at the Treasury.”

The fundamental tasks before Thomas (and the office at large) will be translating the president’s climate-related priorities into a single, concise framework; communicating this to agencies across the federal government; and then “getting everyone to pull in the same direction,” Esty says. This will require thinking not only about conventional regulatory rulemaking, which is designed to move slowly and inevitably faces legal challenge, but about more creative and rapid pathways to progress.

What can be accomplished by executive order? How can the federal government use its unrivaled purchasing power to reduce carbon emissions?

This multilayered work is made more complicated by the fact that a single environmental goal can often lead to conflicting priorities across agencies. To take a well-known example, clean energy deployment strategies from the Department of Energy (DOE) may run into roadblocks at the EPA and Department of the Interior when it comes to endangered species or public lands management. President Biden has made clear that addressing climate change must go hand in hand with righting past inequities through environmental justice. Navigating these challenges will be central to Thomas’ work.

MEINZAHN / ISTOCK.COM



MARISSA KNODEL '14 MEM

Advisor at the Bureau of Ocean Energy Management

In a 2016 interview, six years after flames engulfed BP’s Deepwater Horizon rig, Marissa Knodel said, “The most important lesson the federal government should have learned from Deepwater Horizon is that there is no such thing as safe offshore drilling.” She was, at the time, running the “Keep It in the Ground” campaign at Friends of the Earth, an environmental nonprofit. This strong statement may add complexity to her new role (Knodel was appointed in January) as advisor to the Bureau of Ocean Energy Management, the federal agency that oversees offshore oil and gas leases.

“What stood out to me when I first met Marissa was that she had a deep interest in activism, in social change, alongside the technical policy stuff,” says Josh Galperin ’09 MEM, who previously served as director of

the Yale Center for Environmental Law and Policy, where Knodel was a research assistant. (Galperin, currently a visiting law professor at the University of Pittsburgh, will join the faculty at the Elisabeth Haub School of Law at Pace University in the fall.) “This will prove an asset but also a challenge in her new role.”

It will be an asset, explains Galperin, when she maps out how to curtail the offshore drilling industry and advance offshore renewables in its place. This is an explicit priority of the Biden administration, which has ordered a pause on new drilling leases and called for doubling offshore wind energy production by 2030.

It is a liability when Knodel tries to build consensus: Career staffers possess diverse political views, with some more industry-focused than others, and conservative

commentators have already raised alarms over Knodel’s appointment, he notes.

“She will need to demonstrate that her activism is neither partisan nor unscientific by foregrounding her subject-matter expertise and her commitment to the fine details of policymaking,” Galperin says. “And that’s what makes her advocacy background so interesting — she is, in fact, trained as a policy wonk. She knows what she’s doing. I don’t think it will take her long to build the trust she needs.”

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CHRISTOPHER HANSON '96 MEM, '96 MAR

Chair of the Nuclear Regulatory Commission

“Nuclear” can sometimes be a loaded word in the environmental field.

Opponents are quick to cite Three Mile Island and Fukushima, the Gordian knot of waste storage. Proponents note that operating a nuclear plant provides carbon-free electricity. There are 94 active nuclear power plants in the U.S. generating roughly 20% of the country’s electricity.

The pressing question today is where nuclear energy fits in the effort to decarbonize the global power sector, and it is a question of particular relevance to Christopher Hanson, recently appointed chair of the Nuclear Regulatory Commission (NRC).

Hanson is new to the NRC, which regulates the civilian use of radioactive materials and manages radioactive waste. Only six months

after an appointment by former President Trump to the commission’s five-person leadership team, President Biden promoted him to fill the top spot. But Hanson has worked in the world of nuclear power for two decades, previously as a staff member on the Senate Committee on Appropriations, where he oversaw nuclear programs, and before that as a senior advisor in the DOE’s Office of Nuclear Energy.

“A big part of chairing any of these independent commissions is being able to deal with oversight from the Executive Office and Congress,” says Lawrence Reilly, an expert in the utility industry and lecturer at YSE. “Chris’ background is a good fit with this.”

The key task before Hanson, according to Reilly, is twofold: First, keep an aging fleet of reactors safely online; second, promote the

introduction of next-generation technologies like the Aurora nuclear plant, which was permitted in December 2019 to start construction in Idaho and will be the first to use recycled fuel. Both of these efforts require public support, and to this end Reilly proposed a novel role that Hanson might fill.

“What the administration — and all of us as consumers — could use is an Anthony Fauci for the nuclear industry: someone who has the credibility to tell us this is going to be safe,” he says. “The industry needs an honest broker, someone who is reliable and doesn’t have incentives to tilt the table.” Public perception, says Reilly, is everything.

If Hanson wants to fill the shoes of a nuclear Fauci, he has at least three years to try them on: He will be up for reappointment in June 2024.



BILL PERRY / ISTOCK.COM



DAN UTECH '97 MES, '97 MPPM

Chief of Staff at the Environmental Protection Agency

Dan Utech, newly minted chief of staff at the EPA, is stepping into a beleaguered institution. According to a recent analysis from the Union of Concerned Scientists, the agency lost 672 scientific experts between 2016 and 2020, including 500 environmental protection specialists. These are the professionals working on programs to protect and improve environmental quality, control pollution, and ensure compliance with environmental laws and regulations, among other areas.

“The EPA is coming out of four challenging years,” says Robert Klee '99 MES, '04 JD, '05 PhD, former commissioner of Connecticut’s Department of Energy and Environmental Protection and a lecturer at YSE. “Dan will need to heal some wounds.”

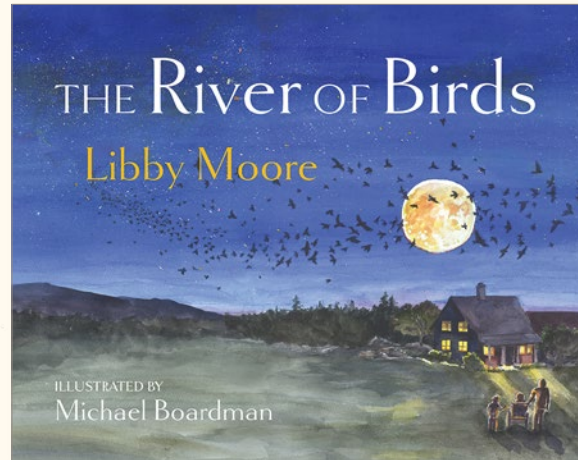
That is his first task. But once the ship is righted, Utech will be central in planning and coordinating the EPA’s action across its separate divisions — air and radiation, water, waste, chemicals — while integrating the broader considerations of climate change and environmental justice into this work.

“The chief of staff typically makes sure the trains are all going on their tracks and bold initiatives get done in the bureaucracy of government,” Klee says. “He also is there to let the administrator know where all these complicated pieces are headed.”

Utech’s background should serve him exceedingly well in several capacities, according to Klee. For six years he was an assistant on energy and climate change to former President

Obama. Before that he was an advisor at the DOE and before that an advisor to former New York Sen. Hillary Clinton. He has seen behind the curtain in much of federal government, and this perspective will help harmonize efforts between career staff and elected officials.

Klee is optimistic that, despite setbacks over the past four years, Biden’s stated priorities along with the appointment of someone like Utech present strong signals to EPA employees that it is time to “take that idea out of the drawer where it’s been collecting dust for four years” and put it to use. In short, Biden’s message is: “We’re moving forward.”



The River of Birds

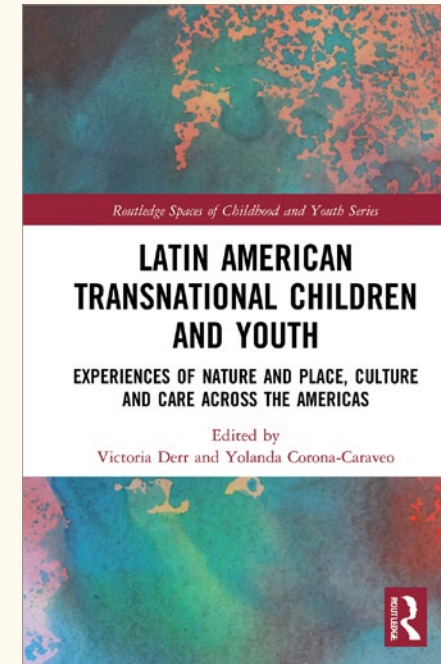
By Libby Moore

Illustrated by Michael Boardman
Bird Upstairs Books

“When a living thing dies, its body stops working. But its love is still here with us, in everything and everyone it has ever loved.” These words frame the honest look at love and grief in “The River of Birds,” a touching children’s book by ecologist Libby Moore ’87 MF. The book, completed just before her death in September 2020, tells the tale of a grandmother who shares a love of birds with her grandchild. The lessons the grandmother taught to her grandchild after the pair found a dead goldfinch outside their window one day return to the child after the grandmother dies, providing a poignant sense of healing for the child’s grandfather. The book includes a guide that provides practical resources for adults who are supporting grieving children.



ARTWORK COURTESY OF BIRD UPSTAIRS BOOKS



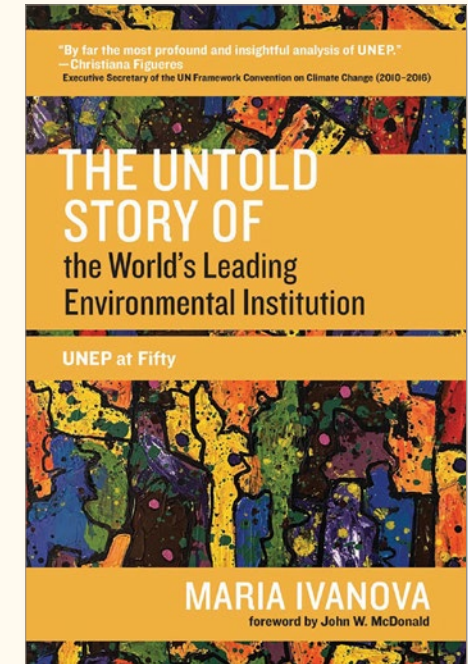
Latin American Transnational Children and Youth: Experiences of Nature and Place, Culture and Care Across the Americas

Co-edited by Victoria Derr
Routledge Press

Migration and transnationalism among children and youth is increasing, but their experiences are largely understood outside the context of their physical environment. This insightful book co-edited by Victoria Derr ’95 MES, ’01 PhD explores how children experience place and how migration and homeland shape their identity.

“This research was borne out of a desire that really began with my dissertation research at Yale: to diversify the narratives about how children interact with nature and place and how they come to learn to care for the environment,” said Derr.

Chapters in the book are dedicated to exploring topics such as love of land by Indigenous children, the notion of neighborhoods in Mexico City, and the relationship between the outdoors and young Latinos’ sense of place.



The Untold Story of the World’s Leading Environmental Institution: UNEP at Fifty

By Maria Ivanova
MIT Press

In 1972, the United Nations Environment Programme (UNEP) was founded to be “the world’s environmental conscience,” developing norms and studying policy for global institutions and organizations. Maria Ivanova ’99 MEM, ’06 PhD, an assistant professor at the University of Massachusetts Boston, documents UNEP’s origin and founding and offers a counterpoint to criticisms of the organization by detailing the ways it has delivered on its charge. Ivanova, who recently served on the U.N.’s Scientific Advisory Board, interviewed numerous past and present UNEP leaders and staff, providing rare insight into the organization’s functioning. In the book, she uses UNEP’s 50-year milestone to offer a roadmap for its future in the face of today’s environmental challenges.

NATURAL CLIMATE SOLUTIONS: A YSE-WIDE FOCUS



A \$100 million gift from FedEx will help fund a new Center for Natural Carbon Capture at Yale dedicated to finding natural solutions for reducing atmospheric carbon. YSE researchers have been exploring these solutions on an ongoing basis, and the establishment of the center will bring a new momentum to these efforts.

BY GEOFFREY GILLER '14 MESC

Faculty and students at YSE have long made climate change the focus of their work,

calculating the carbon emissions from different sources and quantifying ecosystems' abilities to sequester carbon; studying the impact of climate change on biological diversity; exploring climate change's economic ramifications; and generating and testing potential solutions.

In March, FedEx announced that it was donating \$100 million to Yale to fund a new venture: the Yale Center for Natural Carbon Capture. It seeks to both support and expand the ongoing work to address climate change in addition to drawing together more collaborations across the Yale campus. Four new professorships in science and engineering across YSE and the Faculty of Arts and Sciences will be funded as well as numerous postdoctoral fellowships and graduate students. The gift is part of FedEx's goal to achieve carbon-neutral operations globally by 2040.

"Yale has a deep reservoir of expertise and researchers working on this shared problem, which makes it the ideal place for this urgent work," said FedEx Chairman and CEO Frederick W. Smith '66 when the new center was announced.

Factoring into FedEx's selection was Yale's preexisting work on climate change and carbon capture. "They did their due diligence and decided that Yale had tremendous capacity to pursue and scale natural carbon capture," says YSE Dean Indy Burke, citing "YSE's expertise in forest ecology, forest management, plant physiology, soils and ecosystem ecology, and green chemistry and engineering, among other areas."

This multipronged approach to dealing with climate change is an explicit goal of the new center. "Yale has researchers doing groundbreaking work throughout all of the disciplines the Center for Natural Carbon Capture aims to unite," Burke told *Yale News*. "Increasing carbon capture, storage, and reuse is a complex challenge that Yale is prepared to meet."

The center will be a prominent part of Yale's Planetary Solutions Project, which aims to bring together various fields of study at Yale to tackle climate change — from engineering to law to public health.

While the new center will not be based at YSE, it will naturally draw on the School's tremendous and deep experience and knowledge accumulated over decades. Liza Comita, YSE associate professor of tropical forest ecology, will serve as co-director of the center, along with David Bercovici, Frederick William Beinecke Professor and chair of Yale's Department of Earth & Planetary Sciences. In recent years, YSE professors, researchers, and students have been working on projects ranging from the reforestation of South American cattle ranches to coaxing plants into increasing their carbon uptake to the basic scientific and economic calculations underpinning federal policies on greenhouse gas emissions.

ROBERT_S / SHUTTERSTOCK

FORESTS

When convincing landowners to reforest land, says Mark Ashton, Morris K. Jesup Professor of Silviculture and Forest Ecology and director of Yale Forests, most of them are not really interested in restoring the land back to full forestation. They need to do something that will also benefit their livelihoods.

“There has to be a utilitarian twist to it,” he says.

Eva Garen, program director of Yale’s Environmental Leadership & Training Initiative (ELTI), agrees: “With a lot of the people we work with, [carbon capture] is not their big focus. They’re really focusing on their livelihoods and how they can make sure their crops and cattle are as productive as possible.”

ELTI has partners around the world in the tropics with whom they run field and online courses and programs. Their goal is improving the biodiversity and natural ecosystem services of tropical forest landscapes with various land use practices, including agriculture, ranching, and mining. Many of the farmers,

ranchers, and landowners who ELTI works with are indeed deeply concerned about the environment, Garen says. But that concern is tempered by their primary focus of supporting themselves and their families. Much of ELTI’s training sessions and outreach are meant to show that those two goals go hand in hand; for example, pastureland that has more trees on it can help cows better survive the harsh heat of the dry season in places like Panama, Colombia, and Brazil and can improve dairy and meat production. In some cases, farmers are already planting and protecting trees on their land, so it is important to build upon and expand these existing practices, Garen says.

Convincing ranchers to add trees or increase trees on their lands, of course, means those landscapes store more carbon.

“We work with carbon, we just don’t necessarily talk about it that way,” Garen says.

ELTI’s existing partnerships and connections will take the

management strategies studied by YSE faculty and help them reach people managing the landscapes. One thing that Garen says needs to be studied more rigorously is the reasons why farmers do choose to change their methods and move toward more sustainable systems.

“Understanding that is going to be so important for any carbon capture initiative because you’ve got to work with people on the ground, and you can’t impose things,” Garen says.

Another aspect of reducing atmospheric carbon involves not putting it there in the first place. “Approximately 10 percent of global anthropogenic CO₂ emissions comes from tropical deforestation,” Comita says.

“Avoided deforestation, particularly in the tropics, is therefore another area that has a huge amount of potential.” It is also a faster and more efficient way of reducing carbon in the atmosphere than planting trees. In addition to carbon emissions from trees being cut down, drought, forest fires, and

insect outbreaks can also lead to forest loss and degradation, with associated release of carbon. So understanding both forest health and the drivers of deforestation are key, Comita says.

Closer to campus, Ashton and others within The Forest School at YSE are running long-term projects at the Yale Forests in Connecticut, New Hampshire, and Vermont focused on resilience and mitigation to see how they respond to different management regimes. He says that by managing forests so that they contain trees of varying ages, species, and sizes, forests may be better able to weather hurricanes, droughts, and invasive organisms. YSE faculty are studying the impacts of these management practices at different scales — from the microbial processes that affect the decay of dead biomass to the dynamics of food webs and biodiversity across large tracts of forest. Ultimately, Ashton says, the goal is not simply to maximize how much carbon a forest contains but to maximize “stable carbon.”



“Nature is the most brilliant designer. Natural systems know how to handle carbon.”

— PAUL ANASTAS

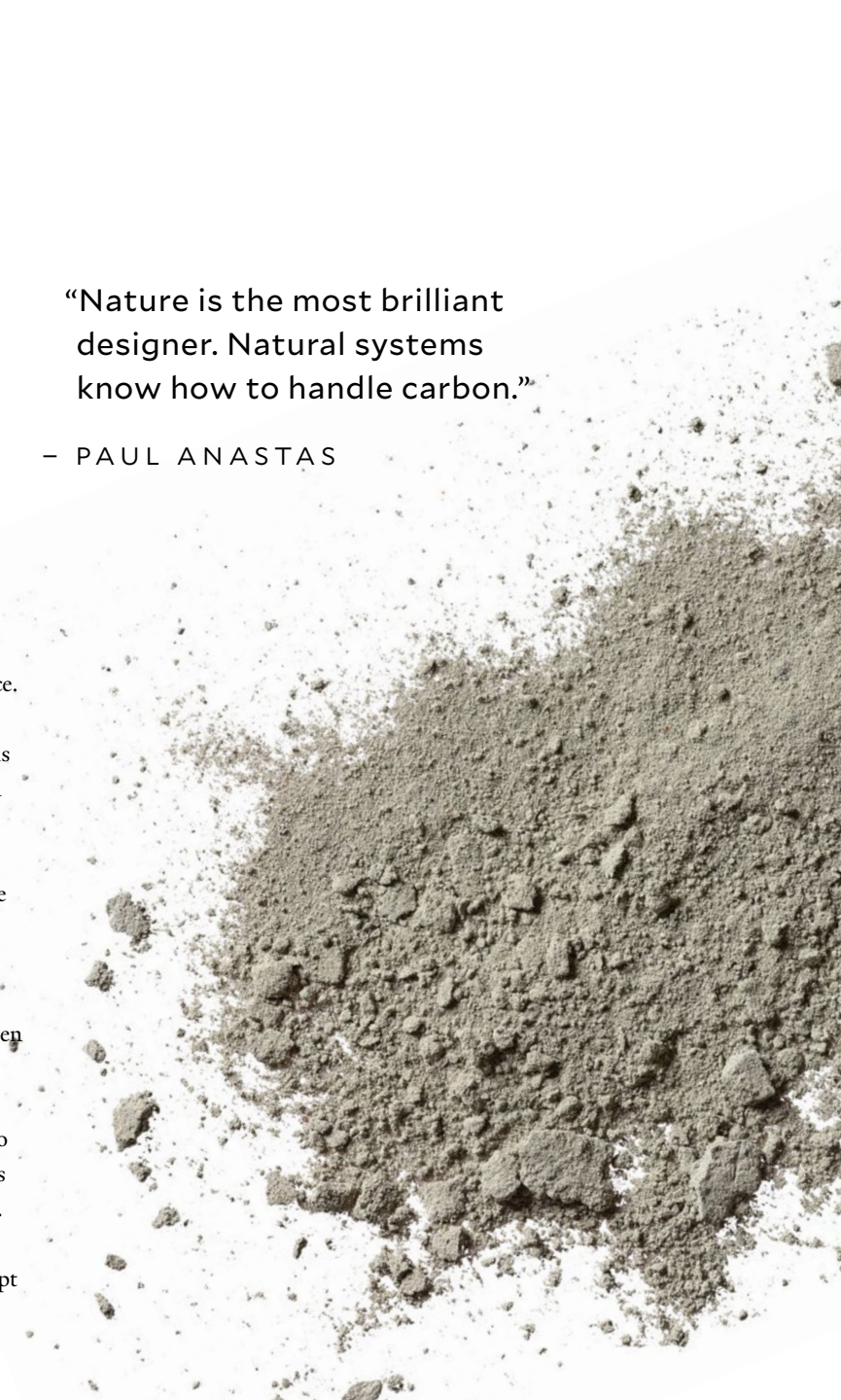
“Nature is the most brilliant designer,” says Paul Anastas, Teresa and H. John Heinz III Professor in the Practice of Chemistry for the Environment at Yale, professor of epidemiology at the School of Public Health, and director of the Center for Green Chemistry and Green Engineering (CGCGE).

Put simply, he says, “natural systems know how to handle carbon.” One question that he and others working on green chemistry and engineering are tackling is: How can we learn from the designs and processes that nature uses to keep the carbon cycle working?

It turns out that nature has a lot to teach us. Anastas and others — including Julie Zimmerman, professor of green engineering, senior associate dean of academic affairs, and CGCGE’s assistant

director — are looking into ways that algae can take carbon from the atmosphere and convert it into oil, which can then be used to make renewable plastics or as a fuel source. They are also investigating how cement and other building materials can be made carbon neutral or even carbon negative. (At the moment, concrete production is a huge contributor of carbon dioxide in the atmosphere.)

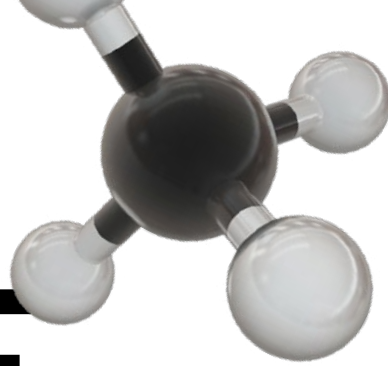
Although the initial funding of the Center for Natural Carbon Capture will not go toward this green engineering work, there are plans to raise further funds to support it under the new center’s purview. “So much of this is at the cusp,” Anastas says of the green engineering work. The new center, he says, will allow these innovations to go from concept and discovery into demonstration, development, and reality.



INDUSTRY



METHANE



When people talk about the increase in greenhouse gases in our atmosphere, they're often referring to carbon dioxide (CO₂). But warming potential can also be found in another carbon-containing greenhouse gas – methane (CH₄) which persists for less time in the atmosphere than carbon dioxide but has a much more potent warming effect in the short term. Over the next 20 years, says Pete Raymond, professor of ecosystem ecology, methane has a global warming potential about 80 times greater than that of CO₂. Raymond and Judith Rosentreter, a postdoctoral fellow in his lab, were involved in a massive effort, published last year in *Earth System Science Data*, to quantify the global methane budget: its sources and sinks, both natural and anthropogenic. Recently the concentration of methane in the atmosphere has increased at a rate not seen for decades; scientists are not sure why.

That increase “wasn't accounted for,” says Raymond. “It could

basically offset most of the targets of the Paris Agreement.”

In particular, Rosentreter and Raymond have focused on coastal ecosystems such as salt marshes and mangroves. Such “blue carbon” ecosystems are generally thought of as carbon sinks, and they do remove a lot of carbon dioxide from the atmosphere. These ecosystems also emit methane, but those emissions are highly variable and uncertain. “So part of the work we do is trying to narrow the uncertainty,” Raymond says.

Rosentreter says that scientists need to do more research to understand just how much methane emissions might offset the carbon storage of blue carbon ecosystems. She is quick to point out that mangroves and marshes are incredibly important for protecting against storm surges and as fish nurseries; they also house staggering biodiversity. Even if these ecosystems are not as effective at sequestering carbon as was previously believed, the ecosystem services they provide mean they still warrant conservation, protection, and restoration, she

says. But for scientists to correctly assess how much carbon needs to be kept out of the atmosphere or removed to avoid the most disastrous outcomes of climate change, knowing how and where methane enters and leaves the atmosphere is a critical piece of the puzzle.

In addition to his work on methane, Raymond is also working with scientists in Yale's earth and planetary science department to explore ways that geochemistry can be utilized to help take carbon out of the atmosphere. Basalt, a readily available volcanic rock, is high in minerals that react with carbon dioxide. This reaction forms a new molecule, bicarbonate, which can hold on to that carbon for thousands of years. So simply adding ground-up basalt to landscapes, like agricultural fields or areas where trees are actively being planted, can help sequester carbon. “It's a super-safe place to put carbon,” says Raymond, because it is so stable and not vulnerable to occurrences like forest fires. Not only that, he says, but the added basalt also benefits soil health and can offset ocean acidification – a potential win-win-win.

ZRFPHOTO / ISTOCK.COM



THE BASALT PROJECT

The Carbon Containment Lab is exploring several groundbreaking approaches to sequestering carbon, including one that also has potential to help mitigate the wildfire crisis in the U.S. Northwest.

In Washington and Oregon, there is a vast geologic formation, five times the size of Connecticut, formed over the course of millions of years by massive volcanic flows. The Columbia River Basalt Group, as it is known, is visible in some river basins as layers and jointed columns, but the vast majority of it is underground and out of sight. The volcanic eruptions that created this mass of rock may have helped cause a rapid global warming in the Miocene some 16 million years ago. That same rock is now being eyed by members of YSE's Carbon Containment Lab (CC Lab) as a possible permanent home for some of the carbon dioxide (CO₂) that humans have been adding to the atmosphere.

This approach to sequestering carbon is just one of several that the CC Lab is exploring. The lab was launched in early 2020 with the aim of contributing to the containment of 1 billion metric tons of CO₂-equivalent emissions by the end of this century, with annual goals of 1 million metric tons per year by 2030. “I know it is ambitious, but I think it is important to set aggressive goals for the CC Lab so that we do something significant and worthy of Yale,” says Dean Takahashi founder and executive director of the CC Lab. While not funded by FedEx's gift, the Carbon Containment Lab's work is complementary to the goals of the new Center for Natural Carbon Capture, and it will be working collaboratively with the Yale research community to help bring the ideas that are generated into action.

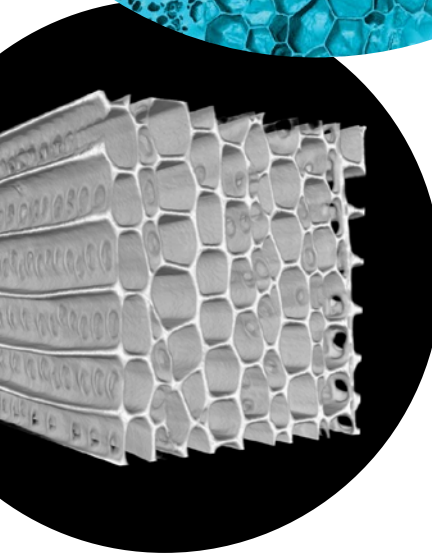
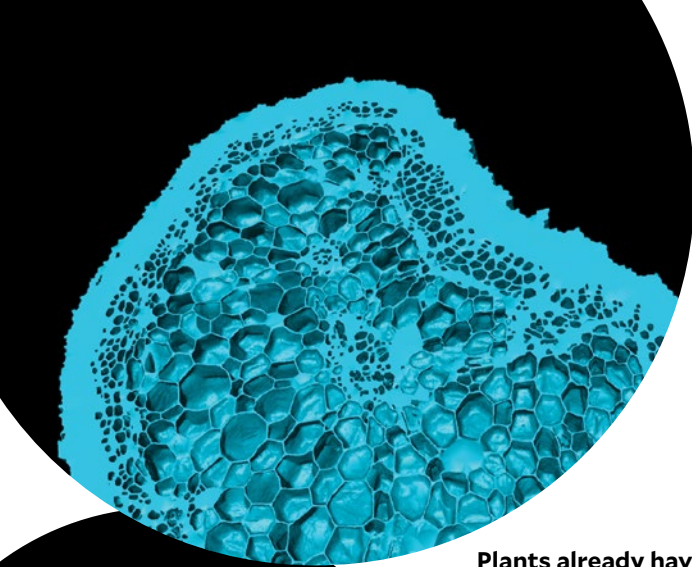
With the basalt project, the basic idea is this: ecologically based thinning of dense forests generates small-diameter wood that lacks much commercial value. The wood can be

gathered and processed into bioenergy (through gasification or combustion) and the resulting carbon dioxide emissions separated and injected deep into the basalt, where it reacts with minerals in the rock to turn into carbonate. “It's a truly permanent store of carbon dioxide,” says Anastasia O'Rourke '09 PhD, one of the CC Lab's managing directors. “The basalt can be used to permanently sequester carbon that otherwise would have been released into the atmosphere via catastrophic wildfire or through decomposition.”

The result is a potential game changer to a daunting problem facing the Northwest: how to thin millions of acres of overstocked forests contributing to the wildfire crisis plaguing the region. “Tax credits for carbon removal vastly improve the economics for this. We think this will be a way to help to pay for ecological restoration of forests, while creating green jobs in ailing rural communities,” Takahashi says.

“It will take at-scale field trials and partnerships across the region to make this happen,” O'Rourke adds. “It also will rely on our collaborations across Yale – such as with faculty members Noah Planavsky (Earth & Planetary Sciences) and Yuan Yao (YSE) and postdoc student Jennifer Kasbohm (Earth & Planetary Sciences). Their work is integral to our ability to build out this and other projects successfully.”

This project, like others that the CC Lab is taking on, has the potential for large-scale implementation. The Lab is focused on “furthering the science, the economics, and the operational partnerships that will lead to solutions that can scale at low cost,” adds Justin Freiberg '10 MEd, CC Lab's other managing director.



3D imaging of plants by YSE's Brodersen Lab.

Plants already have “millions of years of research and development” when it comes to taking carbon dioxide out of the atmosphere, says Craig Brodersen, professor of plant physiological ecology at YSE. Evolution is an excellent force for optimization and efficiency. “The question is whether or not there’s genetic potential there for further optimization. Are plants as good as they’re going to get, or are there opportunities for improvement?”

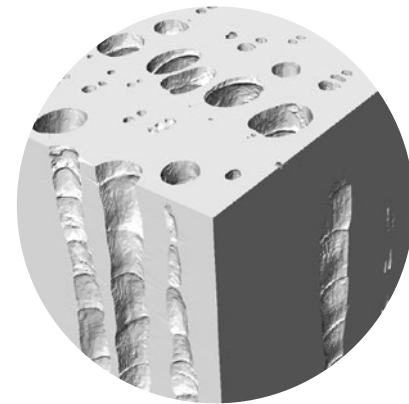
His work suggests the latter. For the past five years or so, Brodersen and his lab have been using advances in 3D imaging to start peering inside the stomata of leaves: the tiny, almost microscopic pores through which leaves take up carbon dioxide and release oxygen and water. Brodersen has

been imaging well-studied plants such as Arabidopsis (which he calls “the lab rat of the plant world”) and investigating how plants with mutations in various genes affect the structure of the stomata. One of the most important aspects of the ability of plants to absorb carbon dioxide is the surface area inside these pores; with this new imaging technology, it is now possible to see which gene tweaks might affect that surface area.

For now, most of Brodersen’s work is aimed at improving the yield of agricultural plants. From a carbon capture perspective, there are more obvious near-term solutions such as reforestation and forest management, he says. Still, there are big gaps in our knowledge about how leaves are

put together and how we might be able to change them, he says.

“That information, over time, informs us about the potential options that we have for manipulating plants that might have a greater photosynthetic and carbon capture capacity in the future,” Brodersen says.



PLANTS

ECONOMICS

Another important aspect of carbon and other greenhouse gases is their economic impact, factors not included in the new center but in which YSE has substantial strength. Ken Gillingham, associate professor of economics, co-authored an opinion in February in *Nature* about the social cost of carbon, a number which estimates the costs today and into the future of each ton of emitted carbon. He explains, “Carbon goes into the atmosphere and increases concentrations ... and higher concentrations lead to damages: agricultural damages, damages from flooding, damages from wildfires, etc.” Setting that figure is important because it helps policymakers determine how much money it makes sense to spend on reducing carbon emissions. In the Obama era, says Gillingham, the cost per ton of carbon was

set at around \$50. The Trump administration revised its estimate down drastically, to between \$1 and \$7 – “unrealistically low,” he and his co-authors wrote in *Nature*. Gillingham says the science and thinking behind this estimate has advanced in the years since the Obama era. He expects that later this year, a working group will arrive at a new estimate – one that is significantly higher than \$50. In the commentary, Gillingham and his co-authors suggest steps that the Biden administration should take when arriving at this new number, including better quantification of “undesirable surprises” – such as accelerated permafrost thawing or changes in ocean circulation – and clarifying limitations in our knowledge on the effects of increased global temperatures on ecosystems and biodiversity.

“FedEx’s generous support will help us advance our work in carbon sequestration and natural climate solutions, but that’s just the first part of the equation,” says Burke. “At YSE, we’re also engaged in research in environmental policy, governance, communications, health, and justice – research that will help pave the way for the global implementation of effective solutions to climate change.”

And it is not just on campus that this work will continue. YSE alumni around the world will be a critical resource in identifying and forming new partnerships. “We are facing enormous challenges, and if we’re going to meet them, those of us in academic research, in industry, in government, in NGOs, in IGOs – we all need to be part of the solution,” Burke says.



FANNING OUT ACROSS THE GLOBE IN SEARCH OF

BIG CATS

YSE students are researching myriad ways these animals are impacting the landscape to fully understand their conservation value and the importance of their survival.

BY FRAN SILVERMAN

To reach his object of study in the eastern Tibetan Plateau, Yufang Gao hiked a mountainside 15,000 feet above sea level. Along the equator, Mary Burak traversed the high, dry landscapes of Kenya. Kaggie Orrick has navigated through thick forests and dense sand in Botswana, and Julia Monk drove 12 hours in a four-by-four truck on sometimes flooded roads to search the Andes of Argentina.

These current YSE PhD students have fanned out across the globe in search of big cats. From lions to pumas to leopards, they are studying different aspects of how these predators and their prey interact with humans and landscapes and influence each other's behaviors. Their work will shed light on human-wildlife conflict and advance mutually beneficial ways that communities on the ground can coexist with big cats.

"A lot of large carnivores are being driven locally extinct because of habitat loss, human encroachment, exploitation, or retaliation because they're preying on livestock. And it's happening because humans are expanding their use of landscapes for their own livelihood purposes," says Os Schmitz, senior associate dean of research and Oastler Professor of Population and Community Ecology at YSE.

The traditional approach to mitigating conflicts was to remove people from specific areas and create dedicated spaces, such as national parks, for wildlife. But these actions, Schmitz says, often have little buy-in from local communities and can discount the important effects predators and their prey have on landscapes and ecosystems.

"What this new research is trying to do is be much more sensitive to local communities and indigenous livelihoods and knowledge. Once you have that trust in place, there is the sense that you could make big strides in conservation," he says.

While the COVID-19 pandemic has kept everyone but Gao in the U.S., the students' previous field studies have given them enough data to move forward with their research. Here is a look at their work.

YUFANG GAO

SNOW LEOPARDS IN CHINA

Gao '14 MEd, who is pursuing a combined doctoral degree in wildlife conservation from YSE and the Yale Department of Anthropology, is focusing his dissertation on the quest for harmonious coexistence between people and snow leopards and other large carnivores.

To obtain his data, he sets up camera traps and collects snow leopard scat in the Nyanpo Yutse region of Qinghai Province to analyze their diets during different seasons. He is yet to see one face to face.

Born in Fujian Province, Gao has traveled across China to study tigers, brown bears, alligators, and the ivory trade. For his current research on snow leopards and other carnivores, he interviews, observes, and travels with Tibetan herders and conservationists who are Buddhist monks.

His work here has led him to think differently about the terms “conflict” and “coexistence,” he says.

“One of the key findings that I am coming to is that the problem of human-wildlife conflict is at least partially caused by our conceptualization of what conflict is and is not,” says Gao. “Conflict is part of coexistence. Conflict is not necessarily the opposite of coexistence.”

The chief diet of snow leopards in the winter is mostly livestock, but Gao questions the assumption that farmers are in competition with predators.

“From local people’s perspective, people and large carnivores are not competitive. They are interdependent. They coexist in an integrated landscape,” he says. “Tibetan herders generally understand that it is normal for the snow leopards to occasionally attack their livestock in order to feed their cubs. Because of this empathic understanding, they’re saying, ‘Oh, actually we don’t have a very serious conflict with the snow leopard.’”

What is needed for human-wildlife coexistence is a different perspective about conflict, not necessarily new national parks or financial compensation for livestock losses, he says.

JULIA MONK

PUMAS IN ARGENTINA

In the high desert of the San Guillermo National Park in the Andes, Monk has spent months in the field studying the important role pumas and their prey, specifically vicuñas (a type of camelid), play in carbon storage and nutrient cycling on landscapes.

Pumas fascinate her, she says, because they are widespread throughout the globe, from the frozen regions of Canada to the southern tip of South America. She has always been intrigued by top predators and their behavior in the wild. When she was a research assistant studying monkeys in Iguazú, a subtropical rainforest that borders Brazil, a rare sighting of a puma during field study crystalized her interest in the species.

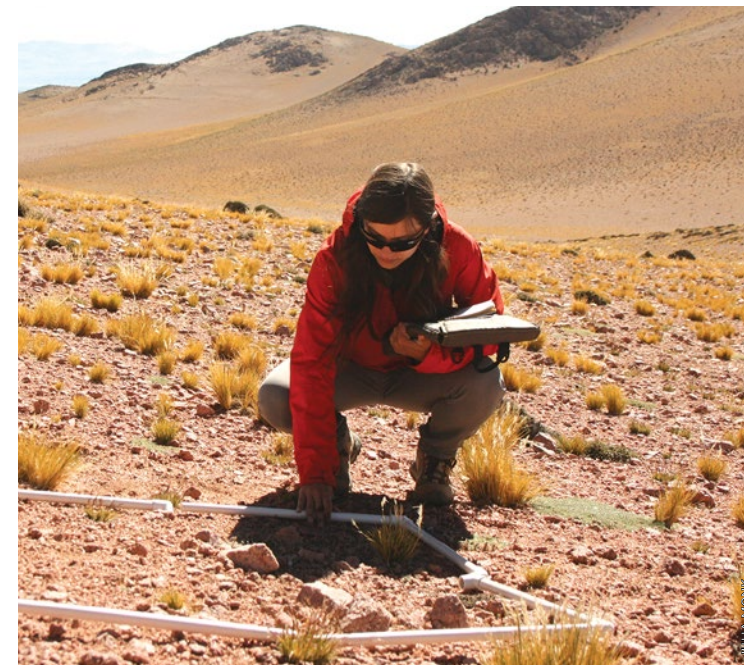
“It was really close, and we were just kind of frozen,” she recalls. “And then it finally turned away from us and started walking casually down the trail, not running away or anything, until finally it disappeared. And it was only then that we sort of let our breath go a little bit.”

For her YSE research, Monk has collected data on the nutrients that seep into the soil from carcasses of vicuñas that pumas leave behind after a successful hunt, tracking where pumas have been through GPS collars. She also analyzes the scat of vicuñas and how it affects plant growth. Pumas are the primary cause of death for the herbivores in the region. Where they kill their prey and the decomposition of their kills has a big impact on the sustainability of the ecosystem.

“I do hope that some of our work strengthens the case for conservation of these animals,” says Monk, who won the 2021 YSE Oswald Schmitz Award for Excellence in Research Communication for best doctoral presentation. “If we can see the ways in which these animals are really impacting the landscape, then we’ll understand some more of their conservation value. Once they’re gone, the ecosystems could look really different in ways that we hadn’t expected.”



YUFANG GAO



JULIA MONK



YUFANG GAO

(Clockwise from top) A rare sighting of a snow leopard captured on a camera trap set by Yufang Gao in the Nyanpo Yutse region of Qinghai Province in China. Gao interviews local Buddhist monks on human-wildlife coexistence in the Tibetan Plateau. Julia Monk samples vegetation in a canyon in the San Guillermo Biosphere in Argentina for her 2019 field research on the impact of pumas and their prey on landscape nutrient cycling.



KAGGIE ORRICK



KAGGIE ORRICK



MARY BURAK

(Clockwise from top left) In Botswana, lions and elephants, pictured here in the Okavango Delta, are two species that are often involved in human-wildlife conflict. Coexistence occurs on a day-to-day level in Botswana, where wildlife, cattle, and people access the Boteti River and its boreholes for water. Mary Burak surveys the landscape in Kenya's Lollidaiga Hills Ranch in 2019 in search of lion scat for genetic research.

KAGGIE ORRICK LIONS IN BOTSWANA

Harvesting and conflict killings over crop and livestock raids are the greatest threats to lions in Africa, but a different approach to land use could avert these clashes. Orrick is focusing her doctoral studies on understanding how lions move across the landscape and how those movements are perceived by humans. The data, she says, will be key for devising new approaches to conservation efforts.

Using camera traps and satellite imagery when back in the field, Orrick will track the spatial movements of lions, elephants, and other wildlife in Makgadikgadi Pans National Park and the Central Kalahari Game Reserve. She will gather information on the interplay between human perception toward lions and the reaction by lions and other wildlife to human behavior. She will also map where community members gather resources such as grass, water, and firewood and areas where they think lions are roaming.

During her previous fieldwork in Botswana, Orrick navigated through dense forests, thick sand, and open grasslands to track lions and had a close call one night when one walked past her tent. She understands the fear.

“When you are next to a lion and he is giving that deep, guttural call, you feel it. It’s really incredible. It gives you chills.”

She has used part of her time this year in New Haven running computer simulations of animal movement to explore her hypothesis that heterogenous perceptions toward predators impact how predators might move on a landscape.

“My goal is to provide governments, conservation NGOs, and, most importantly, communities with a more holistic and more inclusive representation of what’s happening on the ground,” says Orrick. “There’s always been a lot of frustration with the lack of decision-making that is given to people who are the ones living with this conflict and the daily potential for conflict.”

MARY BURAK LIONS IN KENYA

In Kenya, Burak is studying the effects of human activity on the populations, movement, and genetic diversity of lions and other predators in Laikipia County. In East Africa, wildlife populations have declined by 50% since 1970, with human population growth and land use changes cited as major factors.

“I have made a really conscientious decision to try to look at landscapes as holistically as possible,” Burak says.

In order to understand the genetic traits and spatial distribution of lions, Burak spent her days in the field gathering genetic materials and mapping locations of lion activity. With tips from community members and conservationists on the ground, Burak drove to areas where recent kills had been spotted to scoop up scat samples for analysis.

“I’m basically a glorified outdoor janitor,” she jokes. The first time she came across lion scat, she took a picture and sent it to friends thinking, “I know this is kind of disgusting, but I am so happy.”

In analyzing the genetic data, Burak is able to tell the sex of the lions, with whom they have mated, and how genetically diverse the population is in the region.

On one trip to gather scat, Burak says a lion walked right past her car.

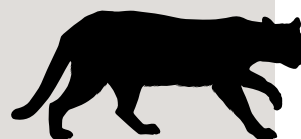
“I think I just froze in awe,” she says.

While working in New Haven, Burak has been writing computer code to represent where lions likely move based on previous behavior and changing landscape configurations to predict human impact over the next few decades.

“I want to try to flesh out all the different possibilities of how local Kenyans might use their land in the future and show the outcomes of how that would affect lions under all of those scenarios,” says Burak. “And then let those who should make the decisions use that information as they wish.”

TRACKING SMALL CATS IN BOLIVIAN AMAZON

Big cats get more attention, but researchers are finding smaller cat species have an equally important role to play.



Research on smaller cat species has been much scarcer than that of big cats, but it is no less important, says Amy Zuckerwise '20 MESC, an environmental scientist for the California Department of Fish and Wildlife Bobcat Program. Zuckerwise and Courtney Anderson '20 MESC spent a summer studying smaller cats in the upper Amazon River basin in northwestern Bolivia for their YSE graduate studies.

To get to their field site in Madidi National Park, one of the largest protected areas in the world, they had to help push a boat upriver for miles to maneuver around rocks. The region is one of the most biologically diverse on Earth, with rainforests, montane dry forests, rivers, and glacier-covered peaks.

Working with the Wildlife Conservation Society, the two

students tracked mostly ocelots and jaguars, analyzing cat activity in different areas of the region, including the national park as well as indigenous communities and tourist areas.

"I was expecting to see a gradient of activity, with most cats in the national park, somewhat less in the tourist areas, and then the least in the indigenous territory where people are living and moving around. But it seems cats choose what habitat they want and are coexisting with human activities pretty well," says Anderson. "There are a lot of horrible stories of people being removed from their lands in order to create protected areas, but this means that a completely people-less landscape is not necessary for wildlife to be successful."

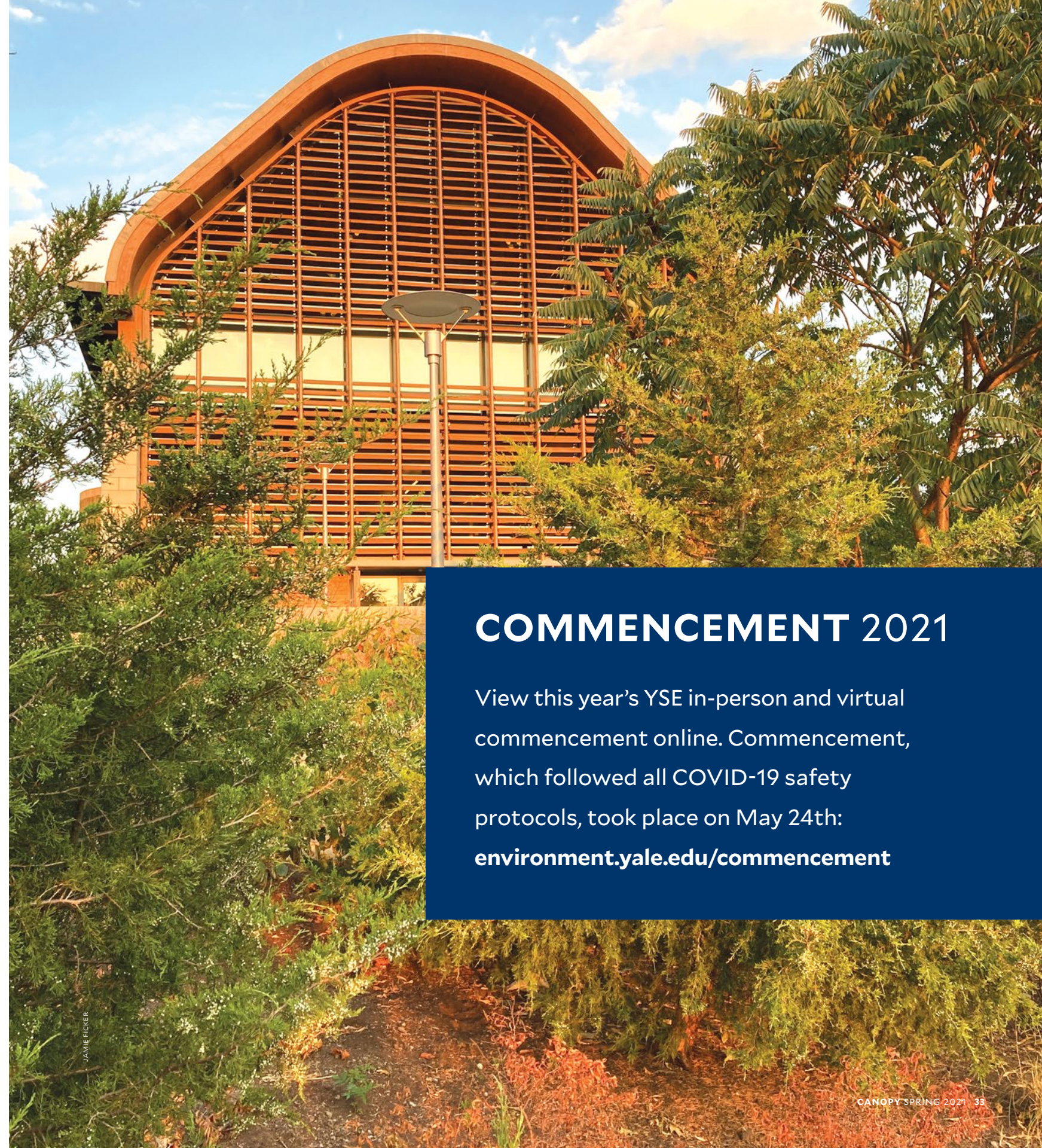
Zuckerwise's work with local animal trackers from the communities of Tsimané-

Mostene and Tacana found that there was no difference between the probability of detecting ocelots using tracking surveys based on indigenous knowledge and using camera traps.

"In the past, this type of indigenous knowledge was often overlooked by scientific researchers, but recently the conservation community has started to recognize its value," Zuckerwise says.

Continued research with local communities, says Os Schmitz, senior associate dean of research and Oastler Professor of Population and Community Ecology at YSE, is vital to the survival of the cats.

"We can think more creatively about how to share the landscape," he says, "and that's really what a lot of the research is about."



COMMENCEMENT 2021

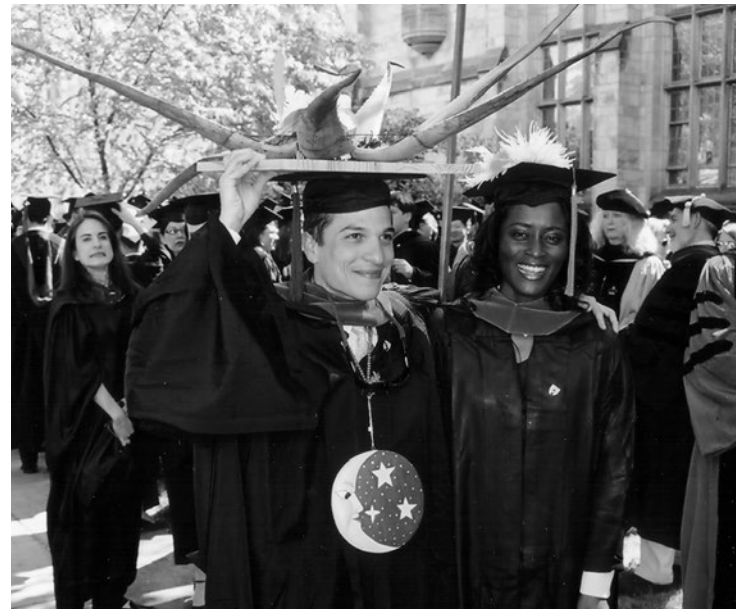
View this year's YSE in-person and virtual commencement online. Commencement, which followed all COVID-19 safety protocols, took place on May 24th: environment.yale.edu/commencement



Perhaps no commencement tradition is more beloved and bespoke to the Yale School of the Environment than graduates decorating their mortarboards. Although no documentation exists, it is believed the tradition started in the 1970s, around the time the School changed its name from the Yale School of Forestry to the School of Forestry & Environmental Studies. Other Yale schools followed suit, but YSE mortarboards remain arguably the “best in show” with graduates turning to everything from Sesame Street to our Prospect Street location for inspiration.



A COMMENCEMENT MORTARBOARD RETROSPECTIVE





Cindy Kushner '04 visiting the Kwita Izina (Gorilla Naming) Ceremony place in Kinigi, Rwanda; November 2020.

CLASS NOTES

☀ Denotes a reunion class year. Reunion 2021 will be held October 8-10, 2021

51 ☀ **CLASS SECRETARY**
Peter Arnold,
arnoldp@sbbmail.com

Peter Arnold writes: “At the age of 96 (maybe thereby setting a Guinness record for the oldest person to publish), I have finished and published ‘Ripples on the Water,’ a collection of memories of my hunting and fishing over the last 80 years, both in California and Ecuador.”

52 **STEWARDED BY**
*The Office of Development
and Alumni Services*

Robert Bond writes: “I am still trying to keep up with the forestry profession by reading the Society of American Foresters’ *Forestry Source* and other related publications. Technology and our changing environment are making huge impacts. My closest relationship to the forest is the view out my apartment window in a retirement community. At 95, I’m fortunate to still be able to enjoy the view! Best wishes to my surviving classmates.”



Robert Bond '52 as Mr. Clean, with a friend as SpongeBob, on Halloween 2019.

56 ☀ **STEWARDED BY**
*The Office of Development
and Alumni Services*

Patrick Duffy writes: “Well into my life story (16 chapters so far) and classmates have nothing to fear as all my stories are funny and harmless!”

We enjoyed the TGIFs on Zoom with **Hannah Peragine '18** earlier in the pandemic and look for more of the same. They were infectious. These alumni activities helped to keep us connected and buoy our spirits. My professional work continues as a 20-year mentor to students at UBC Forestry in Vancouver, Canada (with 1,000 students, half of which are women and equal to the men on all measures!). I promote FireSmart. Hi to **Jack Rose** and other ‘survivors.’”

58 **CLASS SECRETARY**
Ernest Kurmes,
ernest.kurmes@nau.edu

Herster Barres writes: “Let’s see. I’ve spent all of my life redesigning farm plantations to fit the need for farmer income through offsetting CO₂ for U.S. emitters. The result is a mixture of tropical tree species that has promise for low cost of longterm carbon sequestration and reasonable farmer income. Today, Reforest the Tropics manages 93 projects in 330 hectares for more than 200 U.S.

emitters on 13 farms in Costa Rica. Our rate of sequestration varies from 20 to over 30 metric tons/hectare/year at a cost of under \$20/ton, with a proposed longevity of sequestration of 100 years or more depending on society’s needs. We await funding to pass this knowledge on to research stations in the tropical moist to wet countries.”

60 **STEWARDED BY**
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Thomas Fearnley writes: “In good health, playing golf, skiing with wife Sissel, 87 years old. We are vaccinated against COVID-19; looking forward to a better world to come.”

61 ☀ **CLASS SECRETARIES**
Karl Spalt,
kjspalt@yahoo.com
R. Scott Wallinger, scott@scottwallinger.com

Scott Wallinger writes: “The Appalachian Society of American Foresters had a Zoom annual meeting, and it was fun to see forestry colleagues from Virginia, North Carolina, and South Carolina. As chair of the Lowcountry Land Trust based in Charleston, South Carolina, I and my colleagues on the board and staff have been busy as we continue to pursue conservation easements. This year, we’ll celebrate 35 years of work with 150,000 acres of land under easements — and set our goals to add to that.”

63 **CLASS SECRETARY**
James Boyle,
forsol40@comcast.net

Bob Latham writes: “My wife, Connie, and I live in Corvallis but still manage our timberland in eastern Oregon. I am just putting the final touches on ‘Forensic Forestry,’ to be published later this year by CRC Press. Movie rights available but no calls yet from Hollywood. Two daughters doing well professionally but no grandkids yet. Grumpiness index (and cumulative hair loss) increases monthly but good health still produces occasional smiles. Must be a result of a vivacious wife. Most of us here in the Far West fear the loss of entertainment usually flowing from Washington, D.C. Eastern liberals need to stir the pot more vigorously.”

64 **CLASS SECRETARY**
Seeking volunteers!

Stephen Hanover writes: “Read about emissions increasing with ‘devastating’ rate in the Fall 2020 *Canopy*. I get it and do not dispute. This is one face. On the other face of my coin, we have been

injecting anhydrous ammonia for at least 70 years in our family’s mid-Illinois farm. Yields are improved, which needs to help reduce the world food crises. So that said, when I flip my coin, it lands on the edge!”

65 **CLASS SECRETARY**
James Howard,
howard.caroljim@att.net

John Blouch writes: “First anniversary of the close of a 50-year career in coated-paper business. Working on Brunton/Silva mirror retrofit to iPhone for woodlot surveys; cat appreciates guitar/harmonica Willie Nelson mimic (noise to the rest of the family); winnowing a garage full of ‘it must be good for somethings’ long accumulating; unlimbered the tachistoscope; daily family time includes ration of NPR and British serials; dusted off the HF transceiver and rigging antenna to get N3BMM back on the air; wearing out the bearings on the Nordic chair; engaging self-hypnosis for metabolic acceleration (as substitute for dieting); some shore time, travel, and camping when COVID-19 subsides. Yale degree the best investment ever.”

Guy Steucek writes: “I still farm, mostly hay. My wife, Helen Dunlap, tends a small herd of Aberdeen Angus cows that provide therapy and beef. I have been writing for *Lancaster Farming* (L.F.), a weekly newspaper devoted to agriculture, since I ‘graduated’ from Millersville University in 2003. The latest story for L.F. chronicles how a local, regenerative farmer grew a crop of potatoes for Yale that were healthy for the community and the planet. Boola Boola!”

68 **CLASS SECRETARY**
Gerald Gagne,
gerald.gagne@sympatico.ca

Donald Schall writes: “If I put off writing a class note much longer, I’ll be on the obituary page. After recently retiring from a career as a consulting botanist/biologist, I find I am still busy with botanical surveys, wildlife habitat assessments, and land management reviews for local conservation commissions and land trusts. No grandchildren but, before moving to Vermont, my son left me with two emotionally needy cats and a request that I clean out my house or he will have a two-ton dumpster delivered to my backyard. I have been trying to find good homes for my botanical manuals and references covering the flora of New England and the mid-Atlantic states. Nothing is better than holding a real book in your hands just before an afternoon nap.”

69 **CLASS SECRETARY**
Davis Cherington,
dcherington@comcast.net

Harry Haney Jr. writes: “I am an adjunct professor at the University of Georgia and am staying safe during these trying times. I was fortunate to make a short visit to our family’s farms in Mississippi and Alabama prior to travel restrictions.”

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

John Bissonette writes: “I guess like most folks, have been isolating and wearing a mask in public since the COVID-19 pandemic appeared. But Mary and I have kept busy. Mary has been posing questions to the grandkids that they answer. Imagine a 9-year-old writing stories or a tween 13-year-old writing like an adult. Closer to home, have continued publishing: ‘Additional Thoughts on Rigor in Wildlife Science: Unappreciated Impediments’ in the *Journal of Wildlife Management* (2019) and ‘Big Data, Exploratory Data Analysis, and Questionable Research Practices’ submitted in January 2021 to the *Wildlife Society Bulletin*. As my friends and colleagues know, I owe this all to the opportunity the Yale School of the Environment provided a country kid from the sticks of Vermont. Most grateful. Hi to all my friends and colleagues. Stay safe. Now I just ride on the backroads of the West.”

Mike Gawel writes: “Since YSE, I’ve taught, researched, and developed teaching materials at the University of the South Pacific in Fiji and the University of Guam and discovered new species of fish and corals. I worked decades as an environmental planner in Micronesia and administered the Guam Coastal Management Program. For a decade, I was chief of marine resources in the Federated States of Micronesia. Since 2010, I was the U.S. National Park Service (NPS) cultural and natural resources manager for the Guam War in the Pacific National Park (www.nps.gov/wapa) and for American Memorial Park on Saipan, working on coral reef and tropical forest conservation and management and the development of coral reef assessment and monitoring plans. I retired from the NPS at the start of 2020 and remain busy supporting extended family and doing NPS volunteer work. During 2020, I greatly enjoyed Zoom sessions with alumni and others sponsored by YSE.”

Bill Lansing writes: “I just completed my ninth book on the local history of southwestern Oregon. This one is titled ‘The Mills That Built Coos Bay and the Men Who Made It Happen.’ The book traces the history of each mill (sawmill, plywood, paper,

CLASS NOTES

hardboard, etc.) built on the shores of Coos Bay, Oregon, from 1856 to about 1960. My company was involved in many of these but exited the area shortly after I went to work there. I was able to see the economic strength of the forest products industry in the area and sadly have witnessed the precipitous decline. I retired in 2006 and turned my attention to capturing the untold histories of several topics in the region. My wife, Ann, and I still live in Coos Bay after 51 years of marriage and have raised two fine boys.”

72 CLASS SECRETARY
Matthew Rosen,
m.rosen@mchsi.com

Phil Nemir writes: “Still living in the woods near Susanville in the foothills of the northern Sierra. Still consulting; focus of late has been salvaging burned timber from 2020 fires. The Sheep Fire burned to within six-tenths of a mile of our house ... much too close. Looking at cluster planting as a more creative approach to reforestation/restoration. All travel plans currently on hold. Lynda was teaching a few yoga classes a week but now waiting for safer conditions before resuming. Feel very fortunate to live in a beautiful place to hang out as long as we don’t have any more fires!”

Harry Valentine writes: “I am retired after a 42-year career with the Northern Research Station of the Forest Service, having spent time at labs in Hamden, Connecticut, and Durham, New Hampshire. Career highlights include living in the fantastic city of Vienna while on sabbatical at the International Institute for Applied Systems Analysis (IIASA) and co-authoring two books — one about sampling with Tim Gregoire and the other about forest modeling with Annikki Makela (University of Helsinki), who I met at IIASA. Since retirement, my wife, Joan, and I avoid winter, spending those months on St. John enjoying snorkeling and calypso dancing, and the other months in New Hampshire — in my case, playing golf without proficiency.”

Steve Wells writes: “While too many businesses struggled with COVID-19 limitations, my rowing shell business thrived since sculling is an ideal way to exercise with social distancing. So in spite of staying close to home, I’ve been very busy, and Janice and I are healthy and well. Having a daughter and grandchildren in France has given us an international perspective on pandemic responses as well as insights into American politics. We also have a granddaughter now stranded in Cambodia after her ESL job in Shanghai ended abruptly. Happily, the Capitol Land Trust continues to

add properties to its portfolio and has developed a strong environmental education program in partnership with local school districts. From here on up, it’s downhill all the way!”

73 CLASS SECRETARY
Roy Deitchman,
rdeitchman@verizon.net

Tom Dunn writes: “I continue to merge my environmental management education and experience with my career in plastic packaging development by pursuing sustainable solutions to a circular economy for plastic food packaging. I presented a webinar overview of why and how consumer goods companies have abandoned recyclable metal, glass, and paper packaging in favor of single-use plastic to a YSE ‘Industrial Ecology’ class last October, and I will review the industry summit on chemical recycling of plastics in March 2021. I favor private-public extended producer responsibility systems as the means to organize, fund, and implement a circular plastic food packaging future. Webinar notes addressing the history of this problem and the sustainable solution for the future are posted on LinkedIn.”

74 CLASS SECRETARY
R. Lautenschlager,
rlautenschlager@mts.ca

Spencer Beebe writes: “Whitcomb taught me lessons growing up. I reached deep into a burrowing owl nest in the Columbia River hills, spring of ’59, until a sudden and sharp rattle burst forth. Out came my arm, then realizing it must be baby owls, out came Whitcomb, who lived in my room and a fly pen in the yard until released several years later. They have a great sense of humor; always fooling around. Currently, exploring the design of a nature state (versus nation state) we call Salmon Nation as a solution to all the world’s ills. Cheers.”



Whitcomb, companion of Spencer Beebe ’74, on the day of his release.

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

Evan Griswold writes: “After 40 years in the real estate profession, I have hung up my spurs and retired. The year 2020 was a busy one, with people fleeing New York and nearby suburbs for the safety of country properties. I am now turning my attention to land conservation in the lower Connecticut River valley and estuary. I am looking forward to seeing our grandchildren again as soon as it’s safe to do so.”



Steve Levy ’75 and friends on a backcountry ski trip near Diamond Peak in Oregon.

Steve Levy writes: “In anticipation of ongoing good health and faith in the future, I recently purchased a new pair of backcountry skis, a five-year commitment I figure, which will bring me to age 80.”

Helen Waldorf writes: “We are well and living in Hull, Massachusetts, Nantasket Beach. Hoping the rising waters don’t get us while we’re still around. We continue work on voting rights with the League of Women Voters. An interesting new project is the formation of a subcommittee on climate and community within ASTM Committee E50 on Environmental Assessment, Risk Management, and Corrective Action. Please get in touch if you would like to participate.”

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

Philip Conkling writes: “I can’t remember what I wrote last time — whenever that was — but I had fun last week getting interviewed by a ninth-grader from Kenya who found the book I edited, ‘The Fate of Greenland — Lessons from Abrupt Climate Change’ (MIT Press), who set up a Zoom

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meeting for her class project. Who knew? When I mentioned this to my sons — who returned home during COVID-19 times six months ago to work remotely from Maine so they can go to islands in summer and snowboard winters — they looked the book up and saw it was #17 on the list of suggested reads on Google. Who knew?”

Sally Hasted writes: “Up until last March, when I sequestered to protect my (older) husband from COVID-19, I taught teenage kids in a local mental hospital. They loved the tales I told of my years in environmental fieldwork and the fossils and minerals I brought in from years of collecting. I shared nature books, childhood books, and environmental texts, and they always begged for more stories to help empower them in their own search for meaningful lives. I said to choose what they loved doing and to go where they would be happiest living: the mountains, seacoasts, whatever filled them with joy. I said to keep wildlife and nature always in their lives and that they already had many great tales of their own to tell; the greatness in a tale is what it means to you, what you learned, the beauty that stirred you. They envied my time at Yale. After COVID-19, I hope to teach again or get a doctorate in saltmarsh restoration. Love you all.”



Sven-Gunnar Hultman ’76 and two puppies, five weeks old.

Sven-Gunnar Hultman writes: “I was privileged to get economic support to attend Yale in 1975. Eventually, that led up to a PhD in 1985. Fine memories of Bill Burch! Bill came over to me in Sweden to spend some fun days in the summer of 1977. After 15 years as a teacher and researcher at our University of Agricultural Studies (UAS), I switched to CEO in a regional organization working with outdoor recreation and nature conservation. Since retiring in 2006, I have had great fun! My wife and I developed a treatment that was new to Swedish healthcare: a Caredog School. We ran that for 10 years. My interest in nature interpretation eventually led to a department at UAS. We were lucky to have Professor Sam Ham (University of Idaho) as visiting professor and to get his book, ‘Interpretation — Making a Difference on Purpose’, translated. Finally — and now — we run a kennel with Labradoodles. I become young again with each litter!”

77 CLASS SECRETARY
James Guldin, jguldin@prodigy.net

Sir Robert Arnold writes: “All I know is Christ was crucified. Jesus Christ the same yesterday, today, and, yes, forever. I am the director of Club Earth. Hobbies include sailing my classic wooden yacht and driving my antique Rolls Royce. I also play guitar at church services. I love fishing of all kinds, salmon fishing in the ocean and fly fishing on rivers and lakes. Blessings.”

Mark Boyce writes: “No retirement for this dude. I still love my job as a professor of ecology at the University of Alberta. We just moved to a beautiful log home near Elk Island National Park.”

James M. Guldin writes: “On December 31, 2020, I retired as station silviculturist with the Southern Research Station, U.S. Forest Service. In my 28-year career with the agency and 39-year career in

forestry in Arkansas, the best days have been spent with friends and colleagues, almost always outdoors. As a capstone to my professional accomplishments, I became a fellow of the Society of American Foresters (SAF) in 2020 and was recently elected to the Arkansas Forestry Hall of Fame — joining fellow Yale grads **Keith Arnold ’38, Henry (‘Hank’) Chamberlain ’40, Ralph Arnold ’41, John Gray ’42, and O.D. (‘Doogie’) Darling ’58.** Melissa and I have moved from Little Rock to Springfield, Missouri, where I’ll offer ‘retired guy’ advice to colleagues through the Missouri SAF, and as a board member of the L-A-D Foundation/Pioneer Forest in the Missouri Ozarks. I am ever grateful for the friendship and camaraderie of colleagues over the years!”

Dave Hall writes: “I now split my seasons between Salt Lake City and Last Chance, Idaho, and continue to paint landscapes of the Greater Yellowstone country (DaveHallFineArt.com).”

Steven Hamburg writes: “Have reconnected with YSE/Forestry School as Edward P. Bass Distinguished Visiting Environmental Scholar this academic year. Regrettably have not been on campus but rather connecting with faculty and students virtually. In the slightly less than 40 years since I left the school, so much and yet so little has changed. I find regular opportunities in my interactions to raise issues and perspectives that we discussed among ourselves and with the faculty all those years ago, yet it is now mixed with knowledge and data from technologies we could not have even imagined. Hope to get to campus before my year is over. I continue to serve as the chief scientist at the Environmental Defense Fund and to work with research organizations around the world on climate change and air pollution.”

Andrew Melnykovych writes: “Delighted to recognize one of my favorite birding spots — Turkey Run Park in Louisville, Kentucky — on the cover of the Fall 2020 *Canopy*. I’ve been in Louisville (where I am active in the local bird club) for 30+ years. Retired in March 2020 (talk about lousy timing — had to cancel five post-retirement trips) from the Kentucky Public Service Commission after a career divided roughly equally between environmental journalism and utility regulation. Latter included working with utility regulators in emerging economies (Africa, Asia, eastern Europe). Continuing that work virtually and hoping to resume travel for work and fun ASAP. Fortunate to have both offspring (son and daughter) and grandson all living in Louisville.”

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

Pete Falco writes: “With many of our contemporary classmates, we’ve hit a new milestone — retirement! For me, that means the time to return to first-love pursuits: forestry as part of the Adirondack League Club, a 53,000-acre preserve near Old Forge, New York; environmental advocacy as a trustee of The Nature Conservancy’s Adirondack chapter; and, oh yes, just hiking and fishing and skiing! Looking forward to getting beyond the virus, as I hear my grandson call it via Zoom, and to seeing people and the world for real.”



Pete Falco '78 pulled this native brook trout from Honnedaga Lake in the Adirondacks, a new personal best.

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

John Carey writes: “Not much news from me: I have an upcoming story in *Proceedings of the National Academy of Sciences of the United States of America* on the health of the Chesapeake Bay (not good) and continue to edit and write reports for the likes of the International Renewable Energy Agency and the U.N. Global Commission on Adaptation (which clearly show there are feasible and affordable paths to combating climate change). Instead, the big news is about my wife, Vicki Arroyo, who was sworn in on Inauguration Day as head of the EPA’s Office of Policy. Her Georgetown Climate Center also recently succeeded in getting states in the Northeast and mid-Atlantic to move forward with an ambitious plan to cut greenhouse gas emissions from transportation — the Transportation & Climate Initiative. And we acquired a pandemic kitten (trapped by Vicki from the wild in rural Virginia).”

Richard Guldin writes: “I’m continuing to do research and analyses for domestic and international clients. This past year focused on weak links in the reforestation chain to support U.S. interests in the global 1 Trillion Trees initiative. Simply put, the U.S. lacks the seed bank, nursery capacity, site prep and planting contractors, and landowners to reach widely discussed policy goals. I’m also deeply engaged with the Forest Climate Working Group, especially on science policy issues. Winter hobbies focus on building mission-style furniture from quarter-sawn white oak. A rocking chair commissioned for a new granddaughter was such fun that I’m building a second on spec. Summer hobbies are tending raspberries, blueberries, and roses and fly fishing. I’m puzzled why I was the first Yale grad to get the Sir William Schlich Memorial Medal — the nation’s oldest forestry award — since **John McGuire ’41** in 1984. Have we lost sight of nominating Yale alums for major national forestry awards? Do it!”

Martha Tableman writes: “The year 2021 finds me in Summit County, Colorado, working from home due to the pandemic. My dogs love the new arrangement, as they get a long run every morning where they get to cut loose and play. I am also enjoying being able to be outdoors every morning no matter what the weather. I feel lucky to be living in the mountains where I can be outside safely. At work, I am overseeing the construction of a portion of the Peaks to Plains Trail in Clear Creek Canyon. It is a \$3.5 million project that will provide access to the creek and a way for pedestrians and cyclists to travel through Clear Creek County. I am also building a multiuse trail system where people hike or bike, as well as working on the creation of a wooded park. If anyone is coming this way, let me know. And ‘think snow’; we need it.”

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

Star Childs writes: “Staying safe. Got a nice forest in the backyard, but Yale has canceled its programs at the camp, alas. Walking the woods still by the grace of God and cross-country skiing when I can. Maybe we can find a use for the Yale Camp at Great Mountain?”

Christopher LaFarge writes: “I have gone to the dark side and am running a multinational medical device company with products in the urology and IV therapy spaces. Never been so busy. **Vicki LaFarge ’79** and I are beginning to think about retirement as I write, trying to figure out what to do with ourselves. We just had our second grandchild, a girl who lives with her parents and her brother

in Copenhagen, Denmark. As for forestry, I think I can reliably tell an oak from a pine in winter, but more than that may be questionable.”

Patricia Millet writes: “The Millets are stuck in California, unable to get to Cape Breton. Very severe fire season in 2020 had us packed up and breathing smoke for months — a dramatic change from my last summer here in 2007. Patti is gradually becoming bionic, this time with metal holding my lower spine in place.”

Tom Mordecai writes: “I am retired as of Jan 31. I have had an interesting life since my Forestry School days. Working in public health in Africa with the Peace Corps, then traveling for two years to about 16 countries with unique experiences like having an elephant sit on my tent with me in it while in Malawi, a lion staring me down in another tent in Tanzania, and gorillas literally brushing shoulders and slapping me about in Burundi! Americorps filled another year working at a food bank back in New Haven. Later, after another master’s from seminary, I served as a missionary for 31 years with Pioneers in 10-12 different countries. Retirement has brought me back to Connecticut. I hope to spend as much time as possible traveling, adding to the 75 countries I have visited so far.”

Rubén Rangel still resides in Santa Fe, New Mexico, after 28.5 years. He is employed as a contractor with the U.S. Department of Energy Environmental Management in Los Alamos, New Mexico, managing the quality assurance program for the field office and oversight of the prime contractor responsible for characterizing, packaging, and shipping for permanent disposal the historical radiological and hazardous waste from environmental remediation and past production of the Los Alamos National Laboratory. He and his wife, Beatriz, do a lot of hiking and birding and nature, geology, and history exploration of New Mexico back areas via off-road drives. His daughter, Daniella, is in graduate school and his son, Dante, is in medical school. He writes: “All is well. We keep to ourselves during COVID-19 times. I have been teleworking since March 2020. One of these days, I’ll retire to fully be one with the world’s environment. All are welcome to visit and stay in Santa Fe after COVID-19. No masks required by then!”

Al Sample writes: “Starting my fifth year teaching terrestrial ecology and ecosystem management at George Mason University and channeling Bormann and Siccama as best I can. Working to help launch National Academy of Sciences study on forest regeneration in the context of climate change. Still missing Jim Thorne. So happy that we continue to cherish one another.”

Laura Snook writes: “My husband, Jonathan Kingdon, and I spent five months in Mexico in 2020, unexpectedly, due to COVID-19. Fortunately, we were able to stay with my sister in the southern Yucatán, where we enjoyed identifying and watching more than 100 species of birds without leaving her yard on the shore of Bacalar Lagoon. I just submitted an article describing forest regeneration patterns on my research plots just north of there, 11 years after the experiments were established. Since July, we have been in the United Kingdom, staying at home near Oxford. Jonathan is writing a book, we walk around the village most days, and we await our vaccines. We hope to return to Rome, Italy, as soon as it’s feasible.”

Jane Sokolow writes: “I was elected to the board of the New York City Natural Areas Conservancy (NAC). NAC was founded by YSE alumni **Bram Gunther ’91** and **Sarah Charlop-Powers ’09**. In close partnership with the city, the organization works to restore and conserve New York City’s 20,000 acres of green and blue spaces for the benefit and enjoyment of not only the citizens of the city, but for everyone.”

Keith Stewart writes: “After 33 years of growing organic veggies and other edibles and selling in New York City’s Greenmarket program, I’m hanging up the hoe. But the farm goes on. A couple of former crew members will pick up the reins. Good food is the best medicine.”

Carol Zimmerman writes: “John and I are on a two-month trip in our mobile isolation unit; i.e., travel trailer. We started at our home in Maryland, headed south, and were fortunate to see Stu and **Fran Rundlett** for a couple of hours at their new home in North Carolina. We visited Selma and Montgomery, Alabama, to visit significant sites in civil rights and African-American history. After



Carol Zimmerman '80 with mobile isolation unit at Lost Dutchman State Park in Arizona. Superstition Mountains in the background.

stops in New Orleans and Austin, we’ve ended up in Arizona, where we are enjoying sunny skies and warm temperatures. Our COVID 2021 tour has been a wonderful trip so far, and when we get home in March, we are looking forward to getting our vaccinations. What a crazy year!”

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

Keith Tait writes: “Best wishes, all — loving Adirondack life in retirement and parenting Isla, my 16-year-old daughter, who has big ambitions. Anya the Samoyed is our COVID joy, keeping us healthy with endless walking outdoors. We have great neighbors, despite our political differences. Not important to our friendships and community since we wouldn’t agree anyway. At age 65, reflecting on my career and appreciating Yale more than ever — and reading! Loved my Yale experience and environmental health career in private (Pfizer), public (SUNY), and nonprofit sectors with travels in the past, but not missing them — other than in dreams. Strange how that can happen. Best to all.”

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



Tom Jacob '82 addressing Plenary Session of Johannesburg World Summit in 1982, on behalf of Business & Industry.

Tom Jacob writes: “Hello, Class of ’82. After 38 years of environmental policy and advocacy work within the oil (Conoco), chemicals (DuPont), and trade association (American Chemistry Council and Chemical Industry Council of California) worlds, I finally retired as of January 2020. Loving retirement out here in Sacramento area, but wife of 53 years (Sue Ellen) and I are now looking forward to joining our daughters Kristin and Erin and their

families in Seattle area. (They were 2 and 4 when we were at Yale!) It was a great career — best of which was my 20 years of enriching international environmental policy work. Yale prepared me very well for that wonderfully rewarding professional career. Thank you all for helping to kickstart it!”

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

Steve Broker writes: “The Connecticut Bird Atlas continues its survey of the breeding, wintering, and migrating birds of the state, with the fourth year of data collection now underway. Project leaders from the Connecticut Department of Energy and Environmental Protection and the University of Connecticut coordinate this six-year effort. Seven hundred volunteers are conducting fieldwork in 600 Atlas blocks, with regular updates posted on the Atlas website. I serve as regional coordinator for south-central Connecticut. Among project goals are describing the distribution and abundance of bird species through breeding and nonbreeding periods, predicting how Connecticut’s changing landscape will affect birds, informing decision-making for conservation priority species, and making project data available to all stakeholders interested in improving bird conservation in the state. The first Connecticut Breeding Bird Atlas took place during the period of 1982–1986. In visiting new birding sites around the state, the Bormann-Siccama team comes to mind with their many statewide forays.”

David Katz writes: “David Katz, Class of ’83, although spiritually Class of ’84, as I was a one-year master’s student. Still having a great time and thinking fondly of my Yale experience and old friends. I’ve got six grandchildren, all living in the vicinity, so life is very full. I oversee a beautiful 1,600-acre redwood forest on the Gualala River on the Sonoma coast near Stewart’s Point. We sold a conservation easement on the property, have an active carbon project, and are selling carbon credits. Our long-term plan is to evolve an old-growth forest on the site, make the land available for scientific and education uses, and implement a conservation burial program to produce income and to demonstrate a new conservation strategy. The property has a beautiful campground, along with an old sprawling ranch house and a great swimming lake, so old friends and fellow alums are welcome to come visit if they’re on the California north coast. Call me at 707-484-6283.”

David Loeks writes: “Here in the Yukon we’ve come through the COVID period lightly. I am

CLASS NOTES

working on conservation area planning for a large swath of South East Yukon. Indigenous Protected and Conservation Areas (IPCAs) will be Canada's preferred way to meet the 'protect 30 percent by 2030' goal. My project (shoutout to the Wilburforce Foundation) will plug and protect a key link in the Yellowstone-to-Yukon chain of habitats. I see **Bill Klassen '81** to swap stories when we can. Come April, I will unlimber what might be the farthest north iceboat on the spring ice of Lake Laberge."



Dave Loeks '83 iceboating on April ice on Lake Laberge, Yukon.

84 CLASS SECRETARIES
Therese Feng,
Therese_feng@yahoo.com
Roberta Jordan, jordanr5@comcast.net

Dusti Becker writes: "Tony and I are still alive. We moved to Montana but couldn't get into our condo due to holdover renters, a special brand of agony. Our nonprofit, Life Net Nature, almost went under, but teams are now filling for 2021. We still have openings for four volunteers on our giraffe conservation project in Kenya, August 8-21, 2021. Join me! Wishing everyone good health and successful vaccinations."

Mark Kern writes: "I retired last year after being with the EPA (Boston office) for 33 years, mostly in the wetlands program. I had the chance to work with lots of NGOs on protecting valuable wildlife habitat, mostly located by the state wildlife action plans, in Maine and New Hampshire. I still live in Lincoln, Rhode Island, but I am down in Sarasota, Florida, for three months this winter, near family. I have two wonderful daughters and a super wife. I still love being outside, but I am less worried about remembering the names of the plants and critters. OK, I probably have forgotten more than I remember, and that is no big deal. Dog walking, yoga, tennis, and snorkeling sneak into my day when possible."

85 CLASS SECRETARY
Alexander Brash,
alexanderbrash@gmail.com

Chris Donnelly writes: "Well, after 20+ years, I decided that it was time and retired from the Connecticut Department of Energy and Environmental Protection as their urban forester. It was an interesting two decades as I watched urban forestry develop from the basic 'good idea,' as in many ways it mostly seemed to be at the start, to the much more nuanced and science-based field it has become. In the process, working on the busy street corner that I liked to describe my job as being, I got to see a lot, and I got to talk to a lot of people, and I am grateful for it. Not that it all goes away. I will continue to stay involved, teaching a course at the University of Connecticut on urban forestry. There is always a new generation; it is good to stay in touch."

John ("JJ") Earhart writes: "After 30 years and more than a billion dollars of invested equity capital placed into 50 companies in 30 countries, my partners and I at the Global Environment Fund (GEF) have decided to exit our remaining investments, wind down our ownership, and pass the company on to several of our employees. These former GEF employees will continue to focus on private equity investments in the environmental sector, including sustainable forestry, industrial efficiency, renewable energy, recycling, and pollution prevention. The new companies — GEF Capital Partners and Criterion Africa Partners — will continue to operate from our regional offices in South Africa, Brazil, India, and the U.S. It has been a wild and exhausting ride, while extremely rewarding to see how large the sector has become. Although 'retired,' I plan to remain active in the environmental investment community through direct personal investments, active involvement on for-profit and nonprofit boards of directors, and philanthropy."



John Earhart '85 spending a day with the anti-poaching team in a 1.5-million-acre FSC-certified tropical humid forest concession in Gabon. The team is sponsored by CBG-Gabon and WWF.

Mark Judelson writes: "'Michael's Legacy: Transcending Life and Death' is a book I wrote that was published by Mascot Books in 2020. It is the true story of Michael Bovill, a 23-year-old active-duty member of the United States Coast Guard who suffered fatal injuries in a motorcycle accident. Days later, Michael's heart, lungs, liver, and kidneys were donated to five strangers: Roxanne Watson, Scott Taffet, Diana Martinez Moran, Elijah Parker, and Zhou Yuan Li. His last act in this world was to give life to those in need. Surgeons, physicians, parents, children, friends, clergy, and co-workers — along with the recipients of Michael's organs — come together to reveal their pivotal roles interwoven in this story exploring the nature of organ donation itself and inviting readers to reconsider their concepts of life and death. You can see more about it at michaels-legacy.com."

86 CLASS SECRETARY
Seeking volunteers!

Lee Alexander writes: "Having failed at retirement, I am an emeritus research associate professor at the Center for Coastal and Ocean Mapping at the University of New Hampshire. I have retained some expertise in electronic charting and continue working with international colleagues on developing international standards related to safety of navigation and marine environmental protection. I also serve on the Management Committee of the 2,700-acre Birch Ridge Community Forest in New Durham, New Hampshire. Recently acquired through combined federal/state grants and private funding, this forest is permanently conserved and managed for multiple benefits, including water quality, wildlife habitat, forestry, trails and recreation, educational programs, scenic views, and climate change mitigation. In this regard, it is satisfying to be able to implement some of the findings of my PhD dissertation (Multiple-Use Wildlife Management on Non-Industrial Forest Land)."

Daniel Hellerstein writes: "Semi-retired! Still like to sit in the basement coding various stuff. Haven't gone anywhere in the last year, but the square-mile regional park two blocks away keeps me sane. Kids are ... so-so. One got a social work master's in May and hasn't found any work. The other is working remotely but has some chronic fatigue issues. Wife keeps working; she is afraid she would be purposeless if she stopped."

Nan Jenks-Jay writes: "I recently departed from Middlebury College as dean of environmental affairs and was deeply honored with a named student scholarship and Franklin Environmental

Center student space. I received the Association for the Advancement of Sustainability in Higher Education's Lifetime Achievement Award, nominated by author Bill McKibben. I said, 'Equity must move from the periphery to center of environmental work.' Therefore, I'm thrilled that classmate **Dorceta Taylor '85** is at Yale! As co-owner of Miller Hill Farm, Nursery & Gardens with husband Carl, we specialize in native plants, conserved 100+ acres, restored wetlands and amphibian habitat, and planted native trees for carbon sequestration. As board chair for Shelburne Farms, leader in education for sustainability pre-K-12, I'm inspired by their adaptation and innovation in challenging times. This and the power in youth give me hope. Daughter Jessica Jay is an attorney in Colorado protecting land, publishing articles, teaching, and parenting our joy-filled, skiing grandson."

Brian Roy Lockhart writes: "I have recently retired following a career in academia and Forest Service research and have moved back to the family farm in Gentry, Arkansas. I am spending my time traveling (when possible) to forestry conferences/meetings, giving presentations, and meeting with longtime colleagues and friends and new colleagues as I am now one of the old guard. I am also doing some consulting (Hardwood Silviculture LLC) and local substitute teaching — I realize now that I am too old to be breaking in with first-graders and have many stories to share! I look forward to visiting with as many of you as I can. **Mike Gregonis '88** and I keep in close contact."



Jim Guldin '77 and Brian Roy Lockhart '88 on the Crossett Experimental Forest in southern Arkansas. Photo taken in 2009.

Caroline Norden writes: "Life in Maine has been a blessing with COVID as our numbers have remained low and we have lots of open space for hiking. I've particularly enjoyed revisiting many of the local places that I helped to preserve while working for Maine Coast Heritage Trust. I've often

had the wonderful company of **Jane Ceraso '85** and Stephen Lowe, who are now spending half the year in Portland. I was also fortunate to have visits this summer/fall with **Laura Brown, Brenda Lind,** and **Tara Gallagher '85**. Throughout this pandemic, my Zoom calls with fellow Yale classmates have been such a source of inspiration and comfort. On the home front, my eldest daughter is graduating from Wesleyan this spring and my younger daughter is in 10th grade at The Putney School. I keep busy managing my various conservator and trustee responsibilities as well as serving on the board of a local foundation."

Roy H. Smith writes: "Sailed a 44-foot catamaran around Cape Horn and then up the Straits of Magellan. Sampled roasted beaver at Puerto Williams — quite tasty with Chilean red wine. With friends here in the high desert of Arizona, started a PAC to stop large-tract developers from mutilating the landscape and to preserve wildlife in Prescott's Granite Dells, Arizona. Had a spectacular mountain bike crash and was life-flighted to Swedish Hospital in Denver for blood infusions. What an adventure and much safer than sailing around the Horn. Off to New Zealand to stay with my son Bridger and family in Nelson. Together we have planted around 4,000 trees on his property that overlooks Tasman Bay. No COVID-19 virus in New Zealand."

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

Andy Brower writes: "My wife and I have been working from home for a year. I think this is a model for office work going forward — why commute and sit in a cubicle when you are basically staring at a screen all day long? I can do that in my living room while looking out the window at a red fox trotting across a snowy field, as I am doing now. Telework is green and humane, and I hope that the new administration recognizes that it increases the productivity and happiness of its workforce and will save some taxpayer money by not renting ugly, charmless boxes in the Maryland suburbs. Those of us whose lives and incomes have been minimally disrupted or even improved by COVID are incredibly fortunate. Stay warm and healthy!"

Christie Coon writes: "Shortly after graduating, I took courses/fieldwork and became a professional wetland scientist delineating (flagging) wetland soils for folks. Fun to be working in nature (barred owl, deer, pileated woodpeckers). Just retired last year. I continue to monitor wood frog eggs in a

nearby pond and submit reports/maps regarding number of wood frog egg masses and their location in the pond ... and this year I will teach a young fellow these skills. Birding, painting watercolors, playing tennis regularly, and walking my dog are my favorite pastimes!"

Melissa Paly writes: "I'm heartbroken to share the sad news that **Libby Moore** passed away in September 2020. As she writes in 'The River of Birds,' published this spring, 'When a living thing dies, its body stops working. But its love is still here with us, in everything and everyone it has ever loved.' RIP, Libby."

Christopher Pratt writes: "Still living in East Montpelier, insulating and repairing windows. It is good to be working through COVID. Hope for happier times to come."

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

Robin Cash writes: "I remember Bill Burch saying, 'the East shall rise again because we have water.' Living here in Crested Butte, Colorado, where it is absolutely beautiful, Bill's words couldn't be more true. We've done a lot of traveling around the Southwest, particularly southwest Utah and southern Arizona. It is evident all around us out here that drought is significant. We hope for more snow and spring rains and summer monsoons so we can still enjoy living in a ranching-tourist community, which depends on Mother Nature's moisture. We are thankful we can walk out our front door onto trails and be relatively safe amid the COVID pandemic. Peace and love to all."



Robin Cash '88, friend Jane and dogs Rosie and Sky on a short hike in Saguaro National Park.

CLASS NOTES

Eric Jay Dolin writes: “My recent book, ‘A Furious Sky: A Five Hundred-Year History of America’s Hurricanes,’ received a number of year-end accolades, including from *The Washington Post*, *Library Journal* and *Booklist*, *Kirkus Reviews*, *Amazon*, *Mongabay* and *The New York Times*. I am currently working on a book on privateering during the American Revolution. If you are interested in learning more about my other books, many of which involve environmental themes, please check out my website at ericjaydolin.com.”

Tom Strumolo writes: “I am fighting off COVID and going crazy. I care about the Earth, my family, everything else in the universe, and (maybe) the rest of the humans, in that order. I find that everyone I have ever met associated in any way with F&ES/YSE is instantly family. I could update you on my five kids and now six grandchildren who are spread across the country like peanut butter. But you might rather hear about my new 28-year-old partner — kidding! I am in a new partnership but with Berkeley Lab, Johnson Controls, and several universities mounting a vigorous new campaign to retrofit 1 million buildings by 2024, starting with the buildings that need it the most, *not* Princeton’s. Hope you are safe and sound. I miss you all.”

89 CLASS SECRETARY
Elizabeth Carlson,
betsycarlson24@gmail.com

Christine Laporte writes: “Living in Asheville, North Carolina, and loving my work as eastern program director with Wildlands Network, leaders in continental-scale habitat connectivity and conservation for over 30 years. Originally founded by Reed Noss and Dave Foreman, our work is founded in science, driven by fieldwork, and furthered through strategic policy and partnerships. It is especially fun to be collaborating with awesome fellow alumni, including **Jennifer Melville**, **Conrad Reining**, **Gary Tabor ’92**, and other partners as we work to reconnect, restore, and rewild North America. My family and I are well and looking forward to traveling again in the ‘after’ time. Meanwhile, I am grateful to have easy daily access to the Biltmore Estate, where I ride my destrier, Bodhi, and to be able to immerse in our magical southern Appalachian landscapes. Best wishes to everyone and let’s stay connected.”

CJ May writes: “In 2020 I was delighted to win the Environmental Champion award from Aquarion Water for my unusual use of environmental magic shows to educate and inspire the public on recycling, water, energy, and even household hazardous waste. During COVID, I have shifted

performances for schools and libraries online to keep the enviromagic going.”

Laurie Rardin writes: “Hoping everyone is staying healthy and relatively happy! What a year and a half (by the time you read this) it has been! I continue at Dartmouth College as a science communicator focusing on the threats from naturally occurring arsenic in water and food. Our daughters Marta (23) and Brynne (25) are home and are taking up the charge to save our Earth — Brynne via marine conservation and launching a new rash guard business that will donate proceeds to marine conservation organizations and Marta through building a sustainable, ecologically based food system from the roots up. Jed is at 20 years with his congregation here in Concord, New Hampshire, and pushing the climate action message along with building purple bridges. We are so grateful to live where we can be in the woods in a heartbeat. Be in touch if you need a stop-over or a place to stay on your way to hiking or skiing in the Whites!”

Dave Tobias writes: “Greetings to my fellow ’89ers and those in bookend classes who we worked hard and played hard with! I’ve worked the lion’s share of our time since then running land acquisition programs for The Nature Conservancy (seven years) and New York City (25), with two daughters raised and out of the nest. So hard to believe it’s been well over 30 years since I last saw most of you; please don’t wait for the 40th to reach out and/or visit Rhinebeck, New York — let’s make time and find ways to reconnect, reconvene, rebond, and reinvigorate old friendships forged in the halls of Sage! Surprise me — call or text at 845-443-3204. Until then, be safe, stay healthy, and continue the good work!”

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

Seema Bhatt writes: “I work as the national biodiversity expert with the Food and Agriculture Organization of the United Nations in India. Am also deeply involved in issues relating to sustainable tourism and am the honorary vice president of the Responsible Tourism Society of India. Would love to catch up with folks visiting India (New Delhi).”

Jennifer Lamb writes: “Greetings, everyone! I still live on the eastern slope of the Wind River mountains in Wyoming and work for the Wyoming chapter of The Nature Conservancy. It’s been an interesting ride in a state struggling with the world’s decreasing demand for coal and increasing interest in wide open spaces. Please look me up if you come this way!”

Marco Lowenstein writes: “Living and working from home in Corrales, New Mexico, with my wife of almost 30 years. Blue skies and snowy mountains. Have been lucky to have our adult kids (24 and 20) at home during COVID. I continue my work importing wood products for musical instruments, industry, and construction from South America, Central America, Malaysia, and Africa. I still maintain some engagement with community forestry operations, though unfortunately the Forest Stewardship Council is all but irrelevant now. All four of us, like so many others, are trying to figure out what is next. Take care!”

Tim Sullivan writes: “After 15 years with The Nature Conservancy, I have taken on a new role as the natural climate solutions director at the Yampa Valley Sustainability Council, a small environmental group in Steamboat Springs, Colorado. After this past year of remoteness, I craved a chance to work in community and in a more hands-on manner. My new work mainly involves developing, funding, and implementing community-led reforestation and restoration projects. It will be nice to work as an ecologist again and to help conserve the place where I live.”

91 CLASS SECRETARY
Seeking volunteers!

Richard Wallace writes: “In December I left higher education after nearly 25 years and began a new chapter of my professional life as a senior staff member of the Ecological Society of America, where I am editor-in-chief of the journal *Frontiers in Ecology and the Environment*. I’ll miss undergraduate teaching but am so excited to work with my peers fashioning communication strategies for conservation science! **Shannon Spencer ’96** and I are still in Pennsylvania for the time being, watching our sons (now 19 and 22) blossom despite the pandemic and eagerly awaiting the opportunity to get back to seeing friends and family, traveling, and enjoying live music! I love being in contact with my YSE family, including Professor Susan Clark and alumna **Peyton (‘Curlee’) Griffin ’92**, with whom I serve on the board of the Northern Rockies Conservation Cooperative in Jackson, Wyoming.”

92 CLASS SECRETARY
Katherine Farhadian,
farhadianfamily@gmail.com

Shawn Dalton writes: “Hi, everyone! I’m still in Fredericton, New Brunswick, Canada — serving as executive director of Mawi’Art: Wabanaki



Shawn Dalton '92 with Django, Angus, and Wally (left to right)

Artist Collective, which supports the professional development of Indigenous artists in Atlantic Canada. My kids are 23 (daughter Riley) and 21 (son Declan). Enjoying working from home, snowshoeing with my three dogs, reading lots, and playing with the room full of craft supplies I’ve accumulated over the years.”

Lisa Pagkalinawan writes: “I have been working as a consultant for the Asian Development Bank since January 2020. The team I’ve been working with is wonderful, and the work is really interesting. I’ve mostly been working on ocean health issues, including reducing marine plastic pollution. My daughter is now in her first year at the Savannah College of Art and Design in Georgia but is still living with me in Manila and has online classes. She’s also running a successful online business selling vintage clothes and some she sews herself or has others sew for her. My son is in 10th grade and is into gourmet cooking and chess. He also has online classes. My husband is starting a motorcycle tour business. Despite the COVID-19 pandemic, we have been able to travel within the Philippines doing outdoor activities like diving, hiking, horseback riding, and all-terrain-vehicle riding with our children and friends.”

Brian Peniston writes: “Since graduating in 1992, I helped establish the World Wildlife Fund offices in Nepal and Bhutan (1992–95) with my dear departed friend, Mingma Sherpa. In 1996 my family and I moved to Nepal to co-manage Makalu Barun National Park, east of Mount Everest (1996–2004). I also was director of Himalaya programs for The Mountain Institute (TMI) (2004–2012) working in Sikkim, Tibet, Tajikistan, Kyrgyzstan, and Mongolia. In 2012 I returned to the U.S., working with TMI until

2014. Since then, I’ve worked to conserve snow leopards and their habitat and local communities with Snow Leopard Conservancy, mostly in Nepal.”

Mary Verner writes: “As the executive lead for Washington State’s Water Resources Program at the Department of Ecology, I’m grateful for those hydrogeology classes at (then) F&ES. Good to see a COVID-19 face mask on Sage Boy in his *Canopy* pic! YSE student **Alishia Orloff** recently visited my small farm in southwestern Washington, where I’m restoring a heritage barn and a formerly fish-bearing stream. Come see for yourself!”

93 CLASS SECRETARIES
Dean Gibson,
dgibson@sandiegozoo.org
Molly Goodyear, bvidogs@cox.net
Heather Merbs, h.merbs@comcast.net

Beth Conover writes: “**Ken Snyder ’94** and I are still happy Colorado residents. We’ve moved into a 19th century rowhome close to downtown Denver now that our kids have flown the coop! Our son, Jeremy, recently finished biology and geology degrees and is all about science communication and watershed story maps. Our younger son, Ross, is at Oxford getting a master’s degree in race and political history. He’s under ever-increasing levels of quarantine but seems happy. I started a new role as first director of the Salazar Center for North American Conservation (started by former Secretary of Interior and U.S. Senator Ken Salazar) in late 2018, which has been challenging and fun. Ken has immersed himself in a variety of building and consulting projects over the past few years. We’re in regular touch with many YSE/F&ES friends near and far and are grateful for it. Please get in touch with us.”



Jeremy Snyder, Ken Snyder '94, Ross Snyder, friends Maddie Hughes & Maddie Zug and Beth Conover '93 on a San Juan River trip in the Bears Ears region of southeast Utah in June 2020.

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

James Jiler writes: “As a self-declared political refugee (pre-Biden) I left the U.S. for a permanent home in Valencia, Spain, where I live with my family. Currently writing a book on food security and seeking solutions to our world’s ecological problems. If in Spain, look me up! Paella and sangria on me!”

Lorna Johnson writes: “I am living in Victoria, British Columbia, Canada, leading Calder Johnson Consulting and offering business consulting, business coaching, and advisory board services to small to mid-size enterprises digitalizing their products, services, and operations.”

Lindsey Martinez writes: “I continue to run my own little firm, StarPoint Advisors, where I collaborate with leaders at the intersection of business, investing, and environmental science to scale sustainable opportunities into the capital markets. It’s very exciting to see so many different, viable strategies coming to market (at last). With COVID, my younger son (junior in high school) and I have been workmates at home a few days a week while my other son has been very lucky to be up at Colby College, where the school has done an outstanding job managing through the pandemic. I keep in touch with students and faculty at the Yale School of Management and YSE through the Center for Business and the Environment at Yale (CBEY) and have done my best to stay in touch with my wonderful YSE classmates — my favorite Zoom was with **Don Redmond** playing the banjo as mood music.”

Nerija Orentas writes: “After many years working as a contractor, I have now been working for five years at the EPA’s Office of Pollution Prevention and Toxics evaluating consumer and children’s exposures to industrial chemicals and conducting risk assessments. I am so thankful I have been able to work from home during this last year!”

Nicola Robins writes: “I live with my husband, Steve, and daughter, Kim (5), at the edge of the Great Sea Forest in Cape Town. Through Incite, I get to explore ideas with organizations who want to be part of a thriving future. Currently researching intertidal superorganisms that will inspire teams to do more fabulous stuff. Any links/connections in the teeming arena much appreciated!”



Melissa Spear '94 canoeing the remote lower canyons of the Rio Grande in December 2021.

Melissa Spear writes: “I am now living in Seattle after living in the New Haven area for almost 30 years. I moved here in 2018 to be closer to my daughter and have been enjoying being back in actual mountains, spending lots of time exploring the Cascades and the Olympics, hiking, snowshoeing, and backpacking. I just got back from 14 days canoeing the Rio Grande River through the lower canyons (quarantine vacation). I am the executive director of Tilth Alliance, a venerable nonprofit that has been supporting and promoting sustainable agriculture for over 45 years (started by a bunch of scrappy organic farmers, or hippies as they were known back then). Today we are at the forefront of climate change mitigation, focused on the carbon-sequestering properties of soil health and regenerative agricultural practices. A great place to be. Hope everyone is well — looking forward to getting vaccinated!”

Jane Whitehill writes: “Deeply involved in designing my Zoom background so as to be prepared for work (critical for my position as a consultant, which means any conversation may mean a new job ... or not) and for play (critical because at no other time have so many old-time friends been calling because they're stuck at home too). Enjoyed a book by Joseph O'Connor called 'Shadowplay' and a movie called 'The Truffle Hunters.' It's set in the Piedmont and features many dogs. Of course, we've been consumed by politics.”

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

Victoria Derr writes: “I've published 'Latin American Transnational Children and Youth: Experiences of Nature and Place, Culture, and Care Across the Americas' with my colleague from UAM Xochimilco,

Yolanda Corona. I'm an associate professor at California State University Monterey Bay.”

Colleen Coyle Mathis writes: “Battle tested and still standing, I'm happy to report I'm back from the redistricting wars of the last decade, having served as chairman of the Arizona Independent Redistricting Commission for the past nine years and 11 months. While nothing in my childhood (or Yale) could have prepared me for this journey, it was a true honor to oversee the mapping of fair and competitive districts for the Grand Canyon state, despite all the contentiousness that came with achieving them. If you are ever in Tucson, please let me know so that I can regale you with tales from the front line and give you reasons to be grateful for things like a third branch of government and a free press. In other news, I've come full circle in life and am back at Caterpillar, where I hope to help provide more environmentally responsible solutions in the mining sector. My husband, Chris, and Bernese mountain dog, Marigold, look forward to welcoming any classmates to the Sonoran desert.”



Colleen Coyle Mathis '95, former chairman of the Arizona Independent Redistricting Commission.

Kim McDonald writes: “In October, I received the Karen M. Fant Founders Award from Washington Wild for my decade-long volunteer effort to reform the laws in Washington State on in-stream motorized mining. In March Governor Inslee signed ESHB 1261, which I worked on for almost a decade. The new law removes motorized mining tools, such as suction dredges, from all state waters that provide habitat for salmon, steelhead, and bull trout. Huge success for fish and fresh water!”

Tetsuro Mori writes: “On Saturday, October 10, 2020, our class had an online gathering commemorating 25 years since graduation. Nine classmates and Professor Marian Chertow gathered and had a great time sharing experiences, thanks to the thoughtful assistance of the people in the Office of Development and Alumni Services.”



Thorolfshvoll, ancestral home of Ragnhildur Sigurdardottir '95, in the highlands of northeast Iceland.

Ragnhildur Sigurdardottir writes: “In January 2021 I became the owner of my ancestral home in the Ramsar reserve of Mývatn in the northeastern highlands of Iceland. The house has for the last six years functioned as my field station while I have been working on my National Science Foundation and Icelandic Research Foundation research on the human and ecological dynamics of the area for the past 350 years. My research group and I also operate an NGO where we teach courses for graduate students and scholars based on our research. My more permanent home is at another farmstead in southern Iceland, where I breed horses, sheep, and Icelandic sheepdogs. For those not fed up with near-complete isolation and fans of northern lights, starry nights, cross-country skiing, ice skating, and high-speed internet, we are considering making our house available next fall and winter. This should not be an option for those afraid of the dark.”

96 CLASS SECRETARIES
Kathryn Pipkin,
 kpipkin9999@gmail.com
Julie Rothrock,
 jrothrock@maine.rr.com

David Casagrande writes: “I'm an environmental studies professor at Lehigh University living on a 100-year-old farmstead in eastern Pennsylvania and looking forward to our next reunion.”

Andi Eicher writes: “My wonderful wife, Dr. Sheba, and I moved to Asha Kiran Hospital one and a half years ago and have dived into life in the remote, beautiful green hills of southern Odisha. We continue to work with local tribal communities in areas of community health and education and with farmers on organic-input agroforestry. Life is full, and we seldom have dull moments here. We even managed to work pretty normally during the small wave of COVID-19 that washed up in our corner of the world last year. In the meantime, the next-gen

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Eichers may be headed your way! Our daughter, Asha, is currently studying English literature and education at Taylor University in Indiana, and our son is finishing 12th grade and is applying to colleges in the U.S. Our home is open to any YSE-linked folks who find themselves traveling through eastern India. Drop in for chai and conversations! WhatsApp me at +919321112065 for details.”



Ali Jalili '96 and Jared Hardner '96 hiking in NH with Jared's daughter, Ashley, and Ali's son, Aidan.

Ali Jalili writes: “After 23 years with the State Department and following my most recent tours in Ottawa and Jerusalem, I retired right at the beginning of the pandemic and finally semi-moved to Vermont, where I've managed to see classmates **Bryan Foster** and **Stacy Brown '97** and, in New Hampshire, **Jared Hardner**. I would welcome seeing anyone else around here. Burlington and Vermont are both awesome. I'm glad I have been able to be here for our kids during all the disruptions of this past year but also can't wait to get back to living with my wife, Courtney, in Tel Aviv, where she continues with USAID. Next year we'll be headed to Sarajevo, and we're excited to explore that part of the world.”

Namrita Kapur writes: “Up until March 4, 2020, I had the fun of being a regular presence on campus as I am now a lecturer at the School of Management — co-teaching the sustainable finance class to the sustainability executive M.B.A. students. At YSE, I'm co-teaching with Brad Gentry the funding course of the Environmental Leadership & Training Initiative. At the end of 2020, I started working with the co-founder of Wayfair to realize their vision of 'all Bostonians having safe and reliable access to a world-class biking experience to live, learn, work, shop, and play.' It has been super exciting to engage with the small and growing group of players in this space. The third piece of my impact portfolio is serving on corporate boards. I've been shortlisted for a few such opportunities. All this is in parallel with raising our two strong, smart girls — Priya (7) and Divya (4). Mercifully, they have been full time, in person in school near where I grew up outside of Rochester, New York.”

Chris Lotspeich writes: “In 2016 I was diagnosed with ALS, an incurable, fatal motor neuron disease. Fortunately my progression is very slow, and I remain mostly independent despite difficulty speaking and swallowing, fatigue, and arm and hand weakness. Otherwise, my life is pretty much perfect with my wonderful wife, Amy Dunn, and our 12- and 16-year-old daughters in central Connecticut. I continue to work part time as the director of sustainability services at NV5 Energy Efficiency Services (formerly Celtic Energy), focused on resilience, energy assurance, renewable power, and efficiency. I hope to complete long-deferred nonfiction books and novels in the years to come.”

Laura Nachiem writes: “January 2021 concluded 12 years of teaching at my most recent place of employment: a private high school here in Seattle. Most of that time was spent creating a three-tiered physics program. Now that I find myself unexpectedly unemployed, I am exploring

returning to my roots: teaching environmental science at the college level. I am also using this time to help my two high schoolers with their remote learning and will be visiting Joseph in Kona this spring. Joseph is currently a first officer for Mokulele Airlines. In the fall I am hoping we can have an in-person 25th reunion, and to bring Joseph along as I did for our 10- and 20-year reunions.”

Bruce Slater writes: “Hello to all my fellow graduates. I've had a busy few days looking for a needle with a squeeze of COVID-19 elixir. Since I'm in the age group for current Virginia vaccines, I am looking forward to my exciting future plans: dinner anywhere but home, visiting family, etc. It's also been a busy 25 years since my graduation from Yale. A brief review: one wife, three daughters, three sons-in-law, six grandchildren, law practice, appointed to judiciary, 'Of Life and Magic' book published (available on Amazon, by the way), SlaterFineArt.com, HumanityCollection.org, theater script produced. I have, in many ways, tried to earn the Yale MES degree by contributing to reclaiming the health of the environment. My recent play, 'Dilemma of Escape,' is in dedication to the Yale School of the Environment and my best effort to communicate the importance of our environmental moment. I wish you all the best. Stay safe.”

Ryan Valdez writes: “My partner, Rob, and I have been enjoying our move from D.C. to a cabin on the boundary of Shenandoah National Park. Here we live surrounded by nature and a charming small-town community. By mere coincidence it all happened right before the pandemic, so the timing could not have been more fortunate. But it's been quite the learning curve living country life after 15 years in the district. Home improvement is a constant, windy days among tall trees keep you alert, and the wandering of dogs with their hikers spontaneously appear. And we recognize the privilege of having such access to nature; none of it is lost on us. Perhaps it isn't all too surprising for a forestry graduate to end up living in a forest.”

97 CLASS SECRETARY
Paul Calzada,
 pcalzada@clf.org

Zander Evans writes: “Serving as executive director at the Forest Stewards Guild was stressful, but even during a pandemic when I can't leave Santa Fe, the guild provides excuses to connect with other alumni. From carbon forestry to prescribed fire to bottomland hardwood restoration, the Yale phone-a-friend lifeline has saved me on many a project.”

98 CLASS SECRETARIES Seeking volunteers!

Kris Morico writes: “I was appointed the vice president of Environment, Health, Safety and Sustainability (EHS&S) for Baxter International in July 2020. In this capacity I provide overarching leadership to advance programs, policies, and initiatives to proactively sustain compliance and sustainability performance.”

99 CLASS SECRETARIES Jocelyn Forbush, jforbush@ttor.org Christiana Jones, christiana@jonesfamilyfarms.com Jennifer Garrison Ross, jennifergarrisonross@yahoo.com

Julia Hathaway writes: “I’m finishing up a post-doc in climate science communication at the Alan Alda Center for Communicative Science at Stony Brook University. The Alda Center combines social science and improvisational theater techniques to create experiential ways of learning how to more effectively communicate about climate change. There is now a political landscape that supports deliberation about our shared future and ways to get there through collective action. Would love to collaborate with others seeking to engage diverse publics in communicating about equitable alternatives that transition us to a safe and just operating space for humanity and more than human nature.”

Maria Ivanova writes: “It has now been 10 years since I joined the faculty at the University of Massachusetts Boston. Was part of a team that created a new PhD program in global governance and human security — www.global.umb.edu. As we moved so much of our lives online, a number of women from my PhD program at Yale reconnected. What a delight that has been! Also happy to announce a new book on the U.N. Environment Programme with MIT Press. The roots of this book are in my studies at Yale as a master’s and PhD student! It is now one of the 12 new books that Yale Climate Connections recommends you read! I interviewed with the Carnegie Council (available via podcast and video) about my article on the U.N. and environment that appeared in the Fall 2020 special issue of *Ethics & International Affairs*.”

Stewart Stewart writes: “I’m pleased to report the hydrogen economy is alive and well. My company, BayoTech, will ship our first hydrogen generators this summer and raised \$157 million in January. Looking forward to a zero-emission road trip as we extend the hydrogen highway outside California!”

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

Kristen (Prettyman) Adams writes: “**Jeff Adams ’98** and I are still living in Alexandria, Virginia, with three teenagers, two dogs, and a hedgehog. While running a school has been stressful (and invigorating) during 2020–2021, there has been wonderful family time (just what three teenagers always dream of!) filled with lots of hikes, board games, and ’80s movies. Slowing down has provided the head space to realize how lucky we were to be part of the YSE community.”

Berry Brosi writes: “After 10 years on the faculty at Emory University in Georgia, my wife, Karen Levy, and I moved ourselves and our two daughters (now ages 8 and 9) cross-country this summer to begin faculty positions at the University of Washington in Seattle, where I’m an associate professor in the biology department. My research program continues to be focused on how multispecies plant-pollinator interactions are affected by anthropogenic environmental change. It’s strange to move in the midst of a pandemic, and while we miss our friends and colleagues in Atlanta, we are looking forward to exploring the Pacific Northwest and connecting with YSE folks here!”

Ashley Prout writes: “The year 2020 wasn’t all bad — after an eight-year fight, Vermont became the 12th state in the nation to ban the trade in imperiled wildlife parts. My all-volunteer organization, Vermont for Wildlife, led the charge. Federal law does not reach into intrastate trade, thus the critical importance of these incredible grassroots state efforts such as ours. If there is no state law on the books (as is the case in now 38 remaining states), the trade in these animal parts is free and clear, and that very trade is what is perpetuating the demand and the slaughter with devastating ramifications. It’s also interesting to note that COVID-19 is a zoonotic disease, and the more we exploit wildlife, the graver the consequences for humans as well. I was honored to deliver testimony to this end to the Vermont state legislature and am hoping that Vermont’s win will inspire other states to act.”

Janet Sturgeon writes: “I retired from Simon Fraser University in 2016 and moved to Upland, California. I live right up against the San Gabriel Mountains, which are now covered in snow! I live close to Nick and Melinda Menzies, who are Berkeley Environmental Science, Policy, & Management China/forestry folks. We go to plays,

concerts, museums, and tennis tournaments and sometimes talk shop. We have visited Joshua Tree three years in a row during peak wildflower season. I saw **Kate Bickert ’95** in San Francisco not long ago, and we talked for three days straight! Happy to see any other fellow grads who come this way.”

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



Mike Benjamin '01 with a spindly-legged friend in Kent, CT.

Mike Benjamin writes: “Hi, folks! Greetings from snowy Kent, Connecticut. I live here with my wife, Kristin, in an empty nest, with both daughters, Alice (20) and Zoe (18), now in college. I have returned to teaching science at Kent School after five years working as the land manager for the Kent Land Trust. Outside of work, I continue to be an avid hiker and gardener, and I serve as president of the Board of Directors for the Pond Mountain Trust. Regards.”

Jen Osha Buysse writes: “It was a rough year for the Mountain Stewardship and Outdoor Leadership School, the school that I cofounded and am the director and instructor for. We had to shut down due to COVID. However, I am so excited to share that the first graduates of our school stepped up to help lead it! I was blessed with the energy and enthusiasm and new ideas of our young adults, who now have assumed leadership positions. I am pleased to share that we now have in-school environmental education programs, summer programs, and after-school programs with opportunities for teenagers to become medics, scouts, herbalists, and providers. I still live in the same little house in northern West Virginia with my husband, two sons (17 and 9 now!), and many four-leggeds and spend most of my time in the Appalachian forest with children.”

Matt Eddy writes: “I’ve recently taken a new position working with the Muddy River Restoration Project Maintenance and Management Oversight Committee — a job that involves coordinating the efforts of local, state, and federal agencies and the public in a \$90 million effort to restore a flood-prone Boston urban riverway to its former Olmstedian splendor. Regulatory law is not my specialty, but I’m learning a lot and getting to spend plenty of time outside.”

Jesse Johnson writes: “**Terry Kellogg ’00** and I teamed up on Helios Capital Ventures, focused on climate tech investments with a focus on energy storage. Have crossed paths with numerous alumni out there doing great things.”

Pia Kohler writes: “I’ve recently transitioned to full-time freelancing (piakohler.net). While I’ve left the traditional academic track, I enjoy supporting fellow academics through my coaching and editing services. I am also consulting on several exciting projects, notably with the Center for Governance and Sustainability at University of Massachusetts Boston (led by **Maria Ivanova ’99**). When opportunities arise, I’m still pursuing teaching and research in three broad areas: the governance of chemicals, plastics, and wastes; the design and operation of science-policy interfaces; and global environmental politics more broadly. These themes come together in my book, *Science Advice and Global Environmental Governance: Expert Institutions and the Implementation of International Environmental Treaties* (Anthem Press series, edited by **Saleem Ali ’96**). Now based in central Massachusetts, I look forward to post-pandemic meetups with fellow alums in the area and with former students who have recently joined the YSE community themselves.”

Chris Losi writes: “Last year I was offered the opportunity to take a temporary assignment as a district ranger for the Shasta-Trinity National Forest. It turned out better than expected, and in August I started as the district ranger on the South Fork Management Unit in Hayfork, California! We’re about 500,000 acres of Ponderosa pine and Douglas fir forest with two wilderness areas, a wild and scenic river, and some of the least inhabited land less than four hours from San Francisco. If any alums find themselves planning a trip along California Highway 36 or 3, let me know you’re coming, and I’ll be happy to show you around!”

Jennifer Wells writes: “Hard to believe I’ve been at my teaching job for more than 10 years now. I was starting a sabbatical in France when the pandemic

hit. Fortunately my one-week job teaching at the University of Bergamo in late February 2020 was postponed and all my university work is online. Nowadays I’m stuck in the French Riviera, where I’m working on a book between chocolate eclairs and hikes in the foothills.”

02 CLASS SECRETARIES Catherine Bottrill, catherine.bottrill@googlegmail.com Roberto Frau, rfrau@cocoaservices.com.mx

Sarah Canham writes: “Since March 2020, the pandemic has resulted in almost-weekly Zoom calls with **Rachel (Fertik) Edgerton**, **Colleen Ryan**, **Carrie (Magee) Sargeant**, and **Becky Tavani**. Sometimes **Roberto Frau** graces us with



Roberto Frau '02 working with human rights community liaisons for a hydroelectric project in Antioquia, Colombia.

his presence when the mood strikes him.”

Roberto Frau writes: “After living in Mexico City for more than 15 years, I’m back in Puerto Rico now — not the worst place to survive a pandemic. I’m collaborating professionally with the International Finance Corporation and the Inter-American Development Bank as a social specialist for Latin America and doing a little independent consulting as well. Hoping to contribute to Puerto Rico’s sustainable future as well after so much crisis. Come say hola, and I’ll take you out for a mandatory happy hour — your choice of tropical beverage.”

Laura Meadors writes: “I was part of the great 2020 Bay Area exodus, moving from Cupertino to Portland with my family but still staying with Apple. We’re adjusting from relentless sun to relentless rain, but the coffee and running opportunities certainly help. As a bonus, I now live not far from **Gwen Busby** and get to see her regularly!”

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

Betony Jones writes: “My consulting business, Inclusive Economics, working at the intersection of labor and climate issues has really taken off. That, plus tending to kids’ schooling and lots of sourdough baking has kept me busy through the eternal month of Pandember.”

Bryan Petit writes: “My wife, Lorin, and I had our first child in July. Benjamin Petit is now six months old, healthy, and quite the little bundle of joy!”

Abdalla Said Shah writes: “Still hanging around in these uncertain times of the COVID-19 pandemic. In 2019 I became a granddad. I thought I would be retired by now, but work life is still motivating. There is a lot to be done. It is interesting that I now go to work, and my children go to work. I don’t know how, but it has happened too fast.”

Alicia San Gil writes: “I am still living in Albuquerque and working for the Forest Service. My husband, **Inigo San Gil ’01**, and I are home with two teenagers, a 1-year-old puppy (Moxie), and a baby crested gecko yet to be sexed or named who my son is raising. I have been learning to ski and recently started my first large quilt, which I hope to complete in the spring.”

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

Misa Andriamihaja writes: “In 2011 I started my investment company, Green Ventures Capital, with a focus on clean energy, climate change, and sustainability. This space is now the hottest trend in the financial markets, and I am so glad it has finally become mainstream. Sustainability is the new digital, with plenty of new opportunities! I live in London with my 2-year-old son, Alexander, right across Hyde Park where we love walking and having picnics among the trees and greenery.”

Cindy Kushner writes: “My husband, Tony; our son, Theo; our two cats, Twitch and Rocket; and I moved from Kigali, Rwanda, to Harare, Zimbabwe, in January! We’re looking forward to exploring all the nature southern Africa has to offer over the next few years while I head up UNICEF Zimbabwe’s water, sanitation, and hygiene program. Come visit!”

CLASS NOTES

Christopher Riely writes: “Early in 2020, I started a part-time position with the University of Rhode Island in which I work closely with the USDA Natural Resources Conservation Service. Meanwhile I’m continuing independent work with projects focusing on increasing resiliency in New England oak forests and helping landowners in the Southern New England Heritage Forest where Connecticut, Massachusetts, and Rhode Island converge. I always enjoy collaborating with YSE alums in the region.”

Dani Simons writes: “I was recently appointed to the Biden-Harris administration and am serving as the head of the Office of Public Affairs and assistant to the secretary at the U.S. Department of Transportation (USDOT). I am grateful to my wife, **Sarah Charlop-Powers ’09**, who founded and leads the Natural Areas Conservancy, for her support and love, which is allowing me to step into this new fast-paced role. I am thrilled to join an administration that is committed to putting climate and racial equity at the forefront of its agenda. I look forward to using our work at USDOT to make progress on both fronts.”

Leigh Work writes: “After six years living in beautiful Santa Barbara, California, just relocated to Bozeman, Montana. Raising our three incredible kiddos, supporting career aspirations and successes of my lovely spouse, and still trying to keep endangered wildlife from exiting our planet. Adjusting from ocean back to mountains and welcoming classmates to come visit!”

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

Rafael Bernardi de Leon writes: “After my PhD at Wageningen, Netherlands, I’m now a professor at the University of the Republic in Uruguay and an advisor to the government. I coordinated the development of the National Environmental Plan.”

Andrea Johnson writes: “I’m still based primarily on a hilltop in the Osa Peninsula of southern Costa Rica. This May will be five years since some of you beautiful ’05ers joined me to plant the very first seedlings on my finca. More than 3,000 trees later, I’ve still only offset a tiny fraction of my air travel footprint, but the farm is beginning to look like a real baby jungle. When you feel safe getting on a plane again, think of me. I’m working these days mostly as a consultant/program officer with the Climate & Land Use Alliance alongside several wonderful

F&ES (sorry, YSE) alums. It’s a fun challenge to be on the donor side of nonprofit work for the first time in my career. The past year has been savagely hard and full of losses large and small for everyone; I wish all of you – us – a measure of peace.”

Monika Kumar writes: “For over a decade, I have been working on integrating sustainability principles within the World Bank and now am expanding my work program to tackle plastic pollution in South Asia and expand the definition of sustainable finance. On weekends I support my sisters in their effort to tackle fast fashion by working with artisans in India to create natural-dyed, hand-block printed textiles (www.ichcha.com). And in my spare time, I experiment with baking varieties of focaccia – currently seeking new recipes!”



Monika Kumar ’05 modeling for Ichcha. The scarf is organic cotton, hand-block printed and natural dyed in India; designed in NYC

Michelle Lichtenfels writes: “I still live in Portland, Oregon, and just wrapped up my first five years at the Bonneville Power Administration, where I manage the energy-efficiency contract administration team. Matt is the energy manager for a local school district, and our two girls are now in the sixth and second grades. Like many others, we’ve survived working and learning from home for the past year, and we have a cat, a bearded dragon, and stick bugs to keep us company. This summer we’ll be busy trail running, riding bikes, and camping around the Pacific Northwest.”

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

Saima Baig writes: “Hello from Liverpool, everyone! Three years in the U.K. have been full of new things. I run my own digital marketing

business with my husband and have also created a science/environment/history website (with podcast and videos). COVID-19 has of course changed our lives a lot. But overall we have fared better than most, since many businesses now want to up their website/online game. So business has been good. I hope all of you are safe and healthy and wish everyone good cheer as well as quick relief from the pandemic.”

Jenny Frankel-Reed writes: “After 10 wonderful years with the United States Agency for International Development in Washington, D.C., I returned to my roots in the Pacific Northwest and am working with the Bill & Melinda Gates Foundation on climate adaptation and agricultural development. I’m also enjoying sharing the Seattle area’s rocky beaches, old-growth forests, and rainy days with my imaginative 2.5-year-old, Ruby.”

Gonzalo Griebenow writes: “This past year I started a new job with the World Food Programme working as a social and environmental regional advisor for LAC. Although based in Panama, I haven’t been able to even visit my new office since I am stranded (luckily) in Lima due to current travel restrictions. Unfortunately, there are not many stories to share for now and no F&ES (I still can’t use the YSE) get-togethers, which I miss much, in Lima, D.C., and Accra! Crossing my fingers for a better year.”

Charlie Liu writes: “Back in New England in Cambridge, Massachusetts, with wife and two daughters. Settled into working from home and seasonal local activities including hill sledding, top roping, and other stuff that 4- and 6-year-old girls find interesting. Also starting a tai chi practice group in my backyard after COVID eventually dies down: freshpondtaiji.com.”

Alison Rau writes: “I recently became a staff attorney in the environmental conservation division at the Connecticut Department of Energy and Environmental Protection, transferring from a five-year stint at the Department of Emergency Services and Public Protection. I telework; try to come up with imaginative recipes that my husband, 5-year-old, and 2-year-old will tolerate; and look forward to hiking in warmer weather.”

Kim Wilkinson writes: “I am honored to have just completed a wonderful six years working for the shíshálh Nation on the Sunshine Coast of British Columbia, Canada, as the senior advisor for resource stewardship and policy. It was a privilege to serve as technical staff to the rights and title department for the chief and council on matters of ecological stewardship, land use planning, and

leveraging ethnoecological knowledge to make reconciliation real on the ground, protecting the nation’s rights in a 514,000-hectare homeland. Lots of learning while bridging world views. I am now beginning a mini-sabbatical to roam the forests, write some haiku poetry, and continue my studies of the she shashishalhem language before I embark on my next career adventure.”

07 CLASS SECRETARIES
Seeking volunteers!

Erin Barnes writes: “I have a lot of gratitude for my fellow alumni. The year was an intense year for so many reasons, but it was also the year that ioby co-founder **Brandon Whitney** retired as COO after 13 years of remarkable service and that ioby co-founder **Cassie Flynn** rolled off its Board of Directors, as did **Charlotte Kaiser**. Brandon, Cassie, and Charlotte poured themselves into ioby for more than a decade. Thanks to generous support from **Rachel Wilson**, **Johanna Zetterberg**, **Laura Jensen**, **Nadav Tanners**, **Terry Baker**, **Michael Davies ’08**, **Stephen Nielson**, and many others, ioby was able to meet the challenges of 2020 and support resident-led projects that addressed COVID, racial justice, and a safe election.”

Derrick Dease writes: “F&ESers (YSEers still doesn’t feel right to me), I hope everyone is doing well. I’m still living life in Denver and managing through the global pandemic in the absolute best way I can. If you’re in town (or visiting), let me know. I’ve discovered a few cool pandemic watering holes that we can check out. All the best.”

Tina O’Connell writes: “It’s been a wild ride, but we are faring pretty well. Still living in D.C. with my husband, Jonathan, and our three kids. Glad to be championing Kenilworth Aquatic Gardens, a national park and oasis in the city that has provided me and many others comfort during these challenging times. Grateful for the many friends and connections from grad school who continue to make life better!”

Tanja Srebotnjak writes: “After 15 or so years on the West Coast (Seattle, Bay Area, Los Angeles) we’re making our way back east to Massachusetts. I started at Williams College in January, and my husband, who also returned to academia, is working remotely until June. Due to COVID-19, I have yet to meet most of my new colleagues in person, but I got busy right away with our climate and sustainability action plans. My California-raised girls haven’t experienced this many days with temps below 60 in quite some time, but we’re settling in nicely.”



REUNION 2021

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Karen Stamieszkin writes: “Dispatch from Camden, Maine, USA: There is finally a little snow on the ground, the chickens are still laying, the coyotes are getting their groove on, and we are preparing for maple syrup season. I am very excited to share that – along with a team of researchers from the University of Rhode Island, Dalhousie University, and Bigelow Laboratory for Ocean Sciences – I have been awarded a National Science Foundation Biological Oceanography grant to study planktonic food web and carbon cycling dynamics in the Gulf of Maine. We will use cutting-edge technology, including deep-sea robots and compound-specific stable isotopes! Also exciting is that my husband and I are expecting our first (human) baby later this year. We hope everyone is well and staying safe and sane.”

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

Gerald Bright writes: “I am approaching my 13th anniversary with the Philadelphia Water Department (PWD). As an administrative scientist, I serve in the role of assistant operations

manager of PWD’s Green Stormwater Operations (GSO) Unit. GSO operates PWD’s approximately 1,200 green stormwater management practices and is responsible for all inspection, maintenance, repair, retrofit, and optimization of these systems. As a member of the GSO team since its infancy, I am proud to have witnessed and been a part of the growth of such a robust and comprehensive operation. As the program continues to grow in scope and scale as a response to our regulatory obligations, I am excited to continue my work with the expansion of GSO’s capacity, development of staff, and vision planning for the acceptance and operation of future assets.”

Anton Chiono writes: “As part of the Bonneville Power Administration’s Columbia Basin Fish Accords, I continue to work in fisheries restoration on behalf of the Umatilla Tribes. Based in Oregon, my work in the Columbia River Basin takes me across the better part of three states, and this has afforded some terrific opportunities to run into F&ESers (we’re all pre-YSE so far, but I look forward to more recent alums heading our way) on rivers across the Northwest.”

Kelsey Kidd Wharton writes: “We welcomed our daughter, Maeve Elizabeth, in April 2020, and she has been a joy during this year at home.”

Julie Witherspoon writes: “After 19 years of roaming the U.S., Andrew and I returned to Washington state! We are settled in Seattle, and I for one am loving the rain. I’m also incredibly excited to be joining the PNW’s regional land conservancy, Forterra, and helping with their innovative community development work. Please reach out if you are in the area and would like to connect. I’m eager to explore the Cascades, make new friends, and build connections in the local environmental scene.”

09 CLASS SECRETARIES
Rajesh Koirala, rajesh.koirala@aya.yale.edu
Neelesh Shrestha, neesh.shrestha@gmail.com
Simon Tudeviver, tudeviver@gmail.com
Judith Wu, jude.wu@aya.yale.edu

Nina Bhattacharyya writes: “I recently celebrated 10 years with the Natural Resources Conservation Service. I have enjoyed the last decade helping farmers implement best management practices, coordinate a conservation easement program, and now manage partnerships in Florida. Outside of my 9 to 5, I continue to run Zero Waste Gainesville, and we have made great strides with our city and county to pass zero-waste policies. Despite COVID, we continue to offer opportunities for the community to learn ways to reduce waste. On a personal note, my husband and I welcomed our daughter, Avani, into this world last summer. Her name means ‘Earth,’ and she grounds us and reminds us every day why we wish to protect our beautiful natural world.”

Ke Cao writes: “I moved to Waterloo, Ontario, and joined the faculty at Lazaridis School of Business and Economics, Wilfrid Laurier University, in July 2020. There is a fancy indoor bike storage space including two shower rooms in my office building.”

Sarah Charlop-Powers writes: “I am enjoying my role as the executive director of the Natural Areas



Sarah Charlop-Powers '09 on a spring hike with her son.

Conservancy in New York City (with alumni **Dr. Clara Pregitzer '20**, **Brittany Weinke '20**, and **Bram Gunther '91**) conducting research and advancing the care of urban natural areas. In my free time, I’ve been spending a lot of hours outdoors with my wife, **Dani Simons '04**, and our son.”

Mark Evidente writes: “I just got married! Other than that bit of news, I’m still in the Philippines running a consulting firm that works on policy and planning for sustainable tourism development projects. Managed to carry through amid the pandemic and looking forward to the new normal.”

Andre Mershon writes: “Andre, Kristin, Alexander, and Vivienne are all doing well but missing traveling and seeing friends and family in person. I am still working at the United States Agency for International Development and looking forward to new opportunities this year on resilience and climate change adaptation.”

Megan Selby Rutledge writes: “I can’t believe I’m still kicking around the South Island of New Zealand; I have never lived in one place so long! I am working for the government’s Department of Conservation managing the national research program on invasive predators and strategic planning for controlling predator levels in protected areas. This means I get to help protect some pretty unique species in special places. My dog and I are running all over the mountains together, and my husband puts us to shame on his bicycle. We can’t wait to be able to welcome visitors again soon and hope everyone is safe and well and with loved ones this year.”

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

Jen Baldwin writes: “We (**Ian Starr '11**, baby Linden, and I) spent all of 2020 in South Africa due to COVID-19 travel restrictions. It was an unexpectedly cozy, domestic year for two international development professionals! My work with USAID Power Africa strengthening and growing electric grids in sub-Saharan Africa continued from home. We squeezed in lots of hikes in nature reserves and visits to the multiple lovely botanical gardens here, beautiful Cape Town, and the mind-blowing Kruger National Park to see all the charismatic megafauna when COVID times

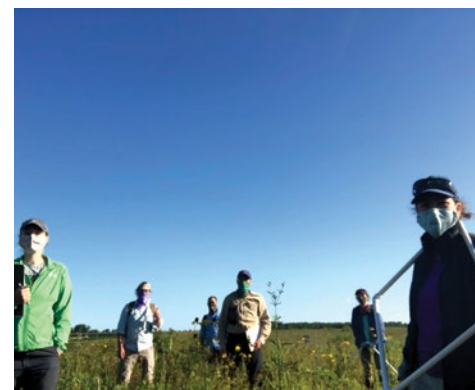
were rosier. Hoping everyone is staying safe and finding joy in these difficult times.”

Michael Blazewicz writes: “Plentiful recent adventures near and far from rowing the Grand, riding a motorcycle down the Baja, and many adventures around Latin America. Professionally I continue to advocate to give rivers room to express themselves, developing new programs and leading new approaches to river restoration. Co-authored two books: ‘Lessons Learned: a Flood Disaster Recovery Guide’ and the most important work of my life to date, ‘Fluvial Hazard Mapping Protocol,’ which I hope will change the way we think about stream corridors and reverse their physical degradation here in Colorado and eventually around the world. Numerous awards from this work including one for engineering excellence, which I find humorous. At home permaculture gardens, trees, flowers, and medicines abound – look me up if ever in Salida, Colorado.”

Gillian Bloomfield writes: “I recently celebrated 10 years working at Yale’s Environmental Leadership & Training Initiative. And it’s been a great 10 years full of learning and exciting personal and professional development. Personally, here in Pittsburgh, it has been challenging, but we have been managing OK so far with the pandemic and associated instability of childcare. We have had a lot of family time together with husband Aaron, son Daniel (nearly 5), and daughter Flora (1). We have been virtually ‘traveling’ to different countries, so far including Russia, China, Mongolia, Indonesia, the Philippines, Ecuador, Colombia, and (of course) the moon. I cannot wait until we can travel again in real life, especially to have an in-person reunion with the YSE (F&ES) Class of 2010. Wishing you all continued health and safety.”

Katie Hawkes writes: “Last year was a whole thing. In addition to, you know, 2020, I got married and moved from Philadelphia to San Diego (a cross-country road trip move planned for years that just happened to fall mid-pandemic). Had to cancel the wedding, but got courthouse married in Palm Springs on the way to the honeymoon we had paid for and couldn’t cancel! My wife and I are staying with friends while we look for a place to live. I’m still working on market research for my same company in Philadelphia, increasingly on CSR and social/environmental impact communications, which has helped my professional life intersect with **Liz Thomas, Casey Pickett '11, Julie Goodness,** and hopefully more F&ESers in the future!”

Holly Jones writes: “I’m an associate professor, National Geographic Explorer, and lead editor of the new journal *Ecological Solutions and Evidence.*



Team Vegapalooza, getting ready to identify plants at Nachusa Grasslands. Holly Jones '10, Jess Fliginger, Tony Del Valle, Pete Guiden, Jeff Heise, and Lizzy Small are pictured.

We live in Illinois, and I miss getting to travel to islands during the pandemic. Our girls are 6 and 10 years old (I defended my dissertation six months pregnant with our 10-year-old), and while we’re enjoying the extra time this pandemic has given us to be together, it is very hard to parent and help homeschool at the same time. Our lab has been able to get some fieldwork done, socially distanced and with safety precautions. We successfully executed what we lovingly call Vegapalooza in August – where we identify all the plants in 210 quadrats at our prairie study site. It was a joy to get it all done in record time.”

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

Lucien Bouffard writes: “Greetings! I’m teaching plant science and natural resources at an agricultural science technical school in Glastonbury, Connecticut. I’d love to connect with other educators! Maria and I just bought a farm in Chester, Connecticut, where we grow elderberries and fresh produce. This sustainable farming endeavor fosters ecology and plant cultural heritage.”

Rebecca McKey Steinberg writes: “I live in Palo Alto, California, now and am grateful to be working for Peninsula Open Space Trust, where I am protecting wildlife habitat and farmland and working to decolonize conservation. One of my colleagues is also a YSE grad, and I am thrilled to be closer to a larger alumni network!”

Dania Trespalacios writes: “I am in the Pacific Northwest, in the San Juan Islands, restoring a cold-molded wooden sloop designed by a racing sailor. The plan is to sail south to California this summer, simultaneously embarking on a marine conservation career and a circumnavigation dream. The aim is to make as carbon-neutral and forward-thinking a vessel as possible – although the final product will take some years.”

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

Rita Effah writes: “It has been a while since I wrote a class note. I have been based in Abidjan, Côte d’Ivoire, since 2018 working with the African Development Bank Group, starting first as a young professional and now as a senior climate finance officer coordinating a multi-donor trust fund called the Africa Climate Change Fund. I enjoy my work and the challenges it presents to help African countries scale up access to various climate change funds. Do get in touch whenever you come this way. I look forward to reading what my classmates especially have been up to. Cheers to a healthy and better 2021.”

Brian Kauffman writes: “Hope everyone is staying safe during this difficult year! As a Philadelphia city family with an itsy-bitsy concrete backyard, we’ve discovered so many new greenspaces during this time, often roaming the suburbs and beyond to escape the house. Shoutout to friends working in land use and conservation! Talk about essential workers – now and always.”

Sameer Kwatra writes: “With my ninth year in the D.C. area, this is the longest I have ever lived in any single location! Seven of those years have been in the delightful company of Ajooni, aka Chia – my vivacious, witty, tree-hugger daughter who fills my life with meaning and joy. I’m still working with the Natural Resources Defense Council on climate change and clean energy with a focus on India. I always enjoy meeting F&ES/YSE folk who are here or just passing by, so please feel free to get in touch.”

Alisa May Mills writes: “I’m living in Hawaii, working for a locally based architecture firm called G70. Our team is designing a net-zero energy new high school campus on Maui. It’s a public school that has two wells for non-potable water and will produce all of its electricity with photovoltaics. When school is out for summer break, there may

even be an opportunity to sell the electricity back to the grid, making money for the Department of Education and offsetting peak air conditioning season for the community (as long as Maui’s smart grid is ready by then). When I’m not designing sustainable building projects, I am enjoying the many jungle hikes and beaches on Oahu with my husband. We are expecting our first baby in February 2021. If you are in Honolulu, reach out!”

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

Patrick Hook writes: “My wife, Julia, and I welcomed twin girls Eleanor and Olivia into the world on June 29, 2020. We moved to the Boston suburbs, and I am hard at work making the woods surrounding my house ‘nickety-poo.’”

Vanessa Lamers writes: “Ten months into the pandemic with no days off, I’m thankful for my excellent training at Yale and for toddler snuggles. Stay safe, all!”



Michelle Lewis '13 shows off her bounty from the Peace Garden Project.

Michelle Lewis writes: “I started a nonprofit called the Peace Garden Project back in 2016. We have turned over gardens in New York and North Carolina. There are six gardens in total now, and last year, in the midst of a pandemic, we managed to grow and distribute food to thousands of people in need. In total we distributed more than 150,000 pounds of food in the second half of 2020 and ran our first Youth Leadership Institute. I never imagined I’d be able to get a group of middle and high school students to wear masks and garden in the heat of summer, but they did. We all did. It was

great fun, and no one got COVID. The thing the youth and volunteers said they enjoyed the most was being able to help people in need. We had the opportunity to grow not just healthy food, but a healthy community.”

Mona Wang writes: “For the first time, the husband and I are growing our garden from the seeds of a previous year’s bounty. Some could say that we’ve graduated. Our healthiest ones are surprisingly, or not, the ones that sprang up all by themselves. Nature, you wondrous being, you. We also learned that our pup is not a morning person. All in all, life’s been pretty whole – probably something to do with internalizing the practice of trying to change the world by starting with the self right here at home.”

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

Klaus Geiger writes: “Do you know of landowners interested in sustainability? I would be thrilled to engage with them! I just started a conservation forester position in New York with The Nature Conservancy (TNC). I would be happy to connect with the alumni network in New York state on a professional basis to support TNC’s Working Woodlands program.”

Marissa Knodel writes: “I am living in Washington, D.C., and adulating hard with my new husband, new house, and new puppy. On January 20, 2021, I was honored and humbled to be appointed by the Biden-Harris administration to join the Bureau of Ocean Energy Management in the Department of the Interior. To find balance and peace during quarantine, I continue to run trail ultras, practice martial arts, teach virtual wine classes, and volunteer in the community.”

Emily Greenlee Orvis writes: “After six years in San Francisco, **Robbie Orvis** and I bought our first house and moved to my hometown of Arlington, Virginia, in September. We’ve had a surprisingly easy time transitioning to suburban life after being city people our entire adult lives. Living here has been fun for our baby boy, Jack, who turned 1 on January 31 and enjoyed his first big snowstorm on his birthday. Robbie is still working at Energy Innovation, where he’s been since Yale, advising policymakers and building climate policy models. I’m running demand response programs in the

Midwest at Voltus, where I’ve been since 2018. We’d love to connect with more alumni in the D.C. area, especially once we’re all vaccinated.”

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

Ross Bernet writes: “I recently joined One Tree Planted, a nonprofit that supports tree planting efforts around the world, as a monitoring expert to use technology to oversee our projects.”

Angel Hertslet writes: “During working hours, you’ll find me hustling for The Nature Conservancy to increase the pace and scale of forest restoration in the Sierra Nevada. In my free time, I’m fixing up my fixer-upper, trying my hand at gardening, performing in absurdist theater, and exploring the great outdoors in the Bay Area with my beau and pooch. I miss New Haven and am looking forward to the after-times, including some unessential travel to come say hi and eat some Da Legna pizza!”

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

Oscar Benjamin writes: “In January, **Alexandra Benjamin** (née Todorovic-Jones) and I welcomed our little girl, Maya, into this world. Our small London apartment is also now full of energy from our large 90-pound dog, Greta.”

Camille Delavaux writes: “I’m finally finishing up my PhD and about to move to Switzerland for a post-doc in the Crowther lab! I actually met Tom (Crowther) at F&ES (or YSE) when I was doing my MESC – small world.”

Lizzie Horvitz writes: “After years of being the fount of sustainability tips among family and friends, I realized that not everyone was lucky enough to have a friend attend YSE (or, at the time, F&ES) to whom they could ask their questions. I started Finch to decode sustainability and incentivize consumers to make better purchasing decisions. We’re launching our browser extension on April 6: choosefinch.com”



Emily Levy, Sam Cohen '16, Dan Reid '16, Jules Luthringer '16, Kelsey Semrod '16, Logan McCoy '17, and Ariana Spawn '16.

Julia Luthringer writes: “**Dan Reid** and I tied the knot in September 2020 after meeting at F&ES (YSE) during MODs in 2014! We happily live and work in Washington, D.C., and are surviving this pandemic with socially distanced, outdoor meetups with other alumni in the area. Dan is the director of circularity and environment at the Responsible Business Alliance, and I’m a program officer at the National Geographic Society.”

Agnes Walton writes: “At the end of 2019, which now seems a lifetime ago, I spent a month barreling through the Amazon rainforest, shooting the documentary ‘Amazon on Fire’ with the support of so many from the YSE community. Thank you! This year we were delighted to receive awards for Best TV Documentary from the NY Press Club, and – to my doc editor partner’s great joy – an American Cinema Editors Eddy Award. More documentary projects are in the pipeline as travel becomes easier, but in the meantime, we’re working on a different production: a baby due on the Fourth of July!”



Agnes Walton '16 captured this photo of reporter Sebastian Walker during a forest fire in the Brazilian Amazon.

17 CLASS SECRETARIES
Niko Alexandre, nisalexandre@gmail.com
David McCarthy, david.mccarthy@yale.edu
Rebecca Shively, rebecca.shively@gmail.com
Emily Wier, emily.wier@yale.edu
Farrukh Zaman, rmfarrukhzaman@gmail.com

Shams-il Arefin Islam writes: “I was to work on a pollution sensing system, which was halted due to the global pandemic. Thus, I traveled back to Bangladesh, where I ended up working as a consultant for three environmental projects. One was to work on a medical waste management plan due to the sudden influx of masks and personal protective equipment in the waste stream; the second was to study the material flow of marine plastic debris; and the third was short-term wastewater-related opportunities for Canadian businesses, where I was selected to be a reviewer. I was also invited by *The Daily Star*, *New Age*, and *Financial Express* newspapers in Bangladesh to write about climate-related issues. Eager to finish my current projects up and see where the next adventure takes me!”



Shams-il Arefin Islam '17 and his prize of a can of Canadian maple syrup and a Roots Bear. Shams reports: “Its not much but it was a bit of a light during the worst of the pandemic days working at home. The reason I am shaved is because I messed up trying to cut my own hair at home. I ended up buzzing it all off to save myself from a terrible haircut.”

Connor Hogan writes: “We live in northern Connecticut and welcomed baby Clara to the family in July 2020. For the past four years, I have been directing a private wildlife refuge, and in the course of my work I regularly get to collaborate with other Yale foresters.”

Will Koh writes: “This past year, I graduated with a master’s in public health specializing in planetary health nutrition at the Harvard T.H. Chan School of Public Health. With an interest in promoting sustainable dietary patterns and improving health

outcomes at the population level, I recently started a new job as a nutrition scientist at Impossible Foods. I am grateful for the values instilled in me by the YSE community and a new career path in food science.”

Jess Scott writes: “After two and a half years designing and implementing climate policy in Governor Andrew Cuomo’s administration in New York, I am excited to start a new role as senior climate advisor in Governor Janet Mills’ administration in Maine! Looking forward to exploring the Maine wilds with Charlie the dog, eating an unreasonable quantity of lobsters, and meeting those of you who live here!”

18 CLASS SECRETARIES
Eve Boyce, evedboyce@gmail.com
Santi Zindel Mundet Cruz, santiago.zindel@gmail.com
Kelechi Eleanya, kelechieleanya@gmail.com
Caroline Hobbs, crlnhobbs@gmail.com
Yishen Li, yishen.li@aya.yale.edu
Kate Richard, ka.c.richard@gmail.com
Weiyang Zhao, china.wyz@hotmail.com

Peter Ludwig writes: “Hi, I still live in New Haven with my wife and almost 3-year-old son. After a year as a researcher and program officer with the Tropical Resources Institute, I accepted a market engagement role for financing programs at the Connecticut Green Bank. I also serve on the board of Common Ground High School. Come to reunion after the end times, and let’s hang out!”

19 CLASS SECRETARIES
Prerna Bhat, prerna.bhat@yale.edu
Christine Ventura, christine.ventura@yale.edu

Frank Cervo writes: “This summer I said goodbye to Marsh (although I never really got to say goodbye as campus shut down after spring break; I hope the mice enjoyed the snacks I left on my desk) and started a job with the Connecticut Department of Energy and Environmental Protection Division of Forestry! As the eastern district service forester, my role is to give professional advice to private forestland owners and help them get connected to the resources they need to manage their properties effectively. I also get to do lots of outreach events and fieldwork throughout the state. It’s a pretty awesome gig!”

Misha Semenov writes: “I recently completed all my requirements for licensure as an architect in Connecticut and am enjoying working as a designer and sustainability coordinator at Centerbrook Architects, the local firm of record for, among

other things, Kroon Hall! I’m learning a lot about green architecture and also getting to spend some time exploring and conserving the beautiful Lower Connecticut River estuary that I now call home. I am also working on turning my capstone project on “ecoempathy” – a catalog of interventions in buildings and cities that connect people to nature – into a book. If you have any great examples of building or streetscape elements that reveal or connect people to ecological elements, please send them my way!”

20 CLASS SECRETARIES
Seeking volunteers!

Jon-Michael Murray writes: “I am pursuing a master’s in international public policy at Johns Hopkins University School of Advanced International Studies while interning at the International Trade Administration, where I am supporting the civil nuclear portfolio and Asia Enhancing Development and Economic Growth through Energy initiative.”

Neil Yeoh writes: “I launched OnePointFive (opf.degree) in early 2020, a remote company focusing on democratizing sustainability experts and expertise to accelerate solutions that allow businesses and the environment to live in harmony. Despite launching a company in the heart of COVID-19, I am grateful that our team was able to have an impactful and profitable year, working with clients and international partners on projects within sustainability services, climate technology, and finance; sequestering ~834 metric tons of carbon; and guiding the deployment of \$500,000 into climate solutions. I have been so grateful for the support of the Yale community – in providing early team members, lifelong friends, connections, and partnerships that have allowed OnePointFive to get to where it is today. I was able to safely meet my core founding team members **Sundara Bhandaram '20**, YSE student Winter Wilson, and Shuran Wei in New Haven late last year, and I hope to make Yale and our community proud curbing climate impacts from the business sector.”

IN MEMORIAM

Kevin Jiang '21 MESc (1994–2021)



A second-year master's student from Chicago at the time of his death, Jiang is remembered fondly for his charisma, his dedication to environmental science, his multitudinous talents, and his unending commitment to helping others. He was killed in New Haven on February 6.

Jiang came to Yale after spending two years in environmental consulting, helping food and steel manufacturers comply with local and federal environmental regulations. He graduated from the University of Washington with a degree in environmental studies. He was a veteran of the U.S. Army, serving as a tank operator and as a chemical, biological, radiation, nuclear officer. At the time of his death, he was a member of the Army National Guard recently called for active duty assisting with COVID-19 relief efforts in Connecticut.

"Kevin epitomized the spirit of our School: service, commitment to others, and using science to make a better and safer world," Dean Indy Burke said.

Gabe Benoit, the Grinstein Class of 1954 Professor of Environmental Chemistry at YSE and Jiang's academic advisor, remembered Jiang's positive attitude — even during cold, wet mornings in the research field — and a rare openness that he brought into his relationships.

"Kevin jumped into everything he did with both feet, all the way, and had a way of inspiring everyone around him," Benoit said.

Robin Schmid, a second-year master's student at the Jackson Institute for Global Affairs and a teaching fellow at YSE, worked in a small group with Jiang in their "Fundamentals of Working

with People" course. She remembered him as an energetic participant.

"When there was a silence, Kevin was always the one to raise his hand and get the conversation started. He was very direct, very frank. He was willing to make himself vulnerable in a way that is uncommon but very special," she said.

Mary Evelyn Tucker, senior lecturer and research scholar who teaches religion and ecology courses with John Grim, said Jiang's dedication to his Christian faith guided his environmental focus.

"He was very committed to the sense that the Earth is a very beautiful and complex system of life that deserves to be protected," she said.

Tucker recalled Jiang creating a backyard garden at his home in New Haven as part of her "Environmental History and Values" course, mirroring the values of Henry David Thoreau.

"When it was washed out by a torrential rain, he simply rebuilt it and documented its regeneration. That's how he was — always filled with positive energy, delight, and curiosity," she said. "There was no ego; it was more, eco. He just exuded this joy in nature and life."

The New Haven Botanical Garden of Healing Dedicated to Victims of Gun Violence, which was created by mothers of shooting victims in the city, will lay a brick engraved with Jiang's name in its walkway along with the names of other victims of gun violence in 2021. The garden was established in collaboration with the Urban Resources Initiative (URI), a program associated with The Forest School at the Yale School of the Environment.

Mochen Liao, PhD candidate (1997–2021)



A first-year doctoral student who was working with Yuan Yao, assistant professor of Industrial Ecology and Sustainable Systems, Liao died on March 5. Described by faculty as an outstanding scholar, Liao was focusing his studies on understanding and improving the sustainability implications of industrial processes.

Liao, 24, was born in Loudi, China. He attended South China University of Technology, where he majored in applied chemistry, and earned his master's degree in forest biomaterials at North Carolina State University (NCSU) before coming to YSE.

He had a specific interest in artificial intelligence and was studying the potential uses and performance of biochar, a carbon-rich solid produced in the conversion of organic biomass, in combatting climate change.

"Mochen's research and his contribution to advances in industrial ecology are an enduring legacy," said YSE Dean Indy Burke. "As we mourn his loss, let's honor his commitment to others by being there for each other and continuing his efforts to better the environment through science."

Yao, who advised Liao in his studies at NCSU when she was an assistant professor of sustainability science and engineering there, described him as talented, bright, and enthusiastic.

"I never had a doubt Mochen would be an outstanding scholar," said Yao, who learned after meeting him that the two had attended the same high school in China.

She published three papers with Liao, two co-authored with Stephen S. Kelley, a professor at NCSU's College of Natural Resources. Liao and Yao also just published a paper on the

applications of artificial intelligence in bioenergy systems.

Yao said Liao's published work in international journals will allow him to always be remembered and recognized for his scholarship.

"Those are his contributions to this world that should be honored and remembered," said Yao.

Prior to coming to Yale, Liao was a research intern for ExLattice, a Raleigh-based company that is developing intelligent engineering software for additive manufacturing. Aditi Bhatkhande, a first-year master's student at YSE, worked with Liao on a project focused on additive manufacturing for their industrial ecology class. The project required many late-night and early-morning Zoom calls with teammates in China and Indonesia.

"Mochen was always more than willing to have meetings and would bring his best self, regardless of how tired we all were," she recalled.

She said he was also very generous in giving his teammates space to share ideas.

"He let us use the project as an opportunity to learn and grow," Bhatkhande said. "He was a great support."

Ines Ayostina, a teammate in the industrial ecology class who was attending online from Indonesia, said in a Yale tribute wall message that Liao was bright but humble.

"He was a warm person and always willing to really listen to others' thoughts and views," she wrote. "Mochen was one of the people who made me feel supported."

Richard Curtis Beck '85 PhD (1947–2020) passed away on June 7, 2020, in Wallingford, Connecticut. A native of Jamestown, New York, Beck served his country as a member of the U.S. Army in Vietnam. He graduated from Southwestern Central School and received a Bachelor of Science from Cornell University, a Master of Science from Louisiana State University, and a Doctorate from YSE. He worked many years for Yale University in a variety of information technology positions. He loved the outdoors, music, good books, and dogs.

Robert (“Bob”) Curtis '51 MF (1927–2020) passed away on December 27, 2020, in Olympia, Washington. He came to Yale for his undergraduate degree and then to pursue his Master of Forestry, during which time he met his wife, Helen. He worked for the U.S. Department of Agriculture (USDA) Forest Service until 1996 as a research forester. He studied how trees grow in response to various practices, and he was interested in the total amount of tree growth when harvested at different ages. Curtis received the Award for Superior Service from the USDA, among others. He was a member of the Society of American Foresters for 50 years. In retirement, Curtis continued his research and became an emeritus scientist with the USDA Forest Service. He loved the outdoors and the career that allowed him to be outside much of the time.

Richard (“Dick”) Jorgensen '54 DF (1918–2019) passed away in May 2019, just before his 101st birthday. His doctoral research at Yale was focused on laminated beams. In the early 1950s he helped establish the forestry school at the University of the Andes, Mérida, Venezuela. Jorgensen returned several years later to work with the United Nations establishing economic value for trees being burned to create farmland, with the goal that they would be harvested more responsibly. He studied many unfamiliar species and created a wood “library,” now housed in its own building at the University of the Andes. He used his vacations to teach wood utilization practices in Paraguay and Panama. Jorgensen was a faculty member at Penn State and Michigan State, and toward the end of his career, he was the U.S. Forest Service expert on wood products used for building homes.

Harry B. Mahoney '55 MF (1930–2020) of Elkins, West Virginia, passed away on August 22, 2020. Upon graduation, he served in the U.S. Army for two years and then worked for the United States Forest Service, where he concentrated on the Monongahela National Forest, specifically the Cheat Ranger District in Parsons, West Virginia, where he served as ranger. His love for the great outdoors was demonstrated with his work as coordinator of the Highland Scenic Highway and his role in the development of the Otter Creek Wilderness Area. Mahoney was an avid spelunker and bat enthusiast. In 1963, he discovered and named My Cave in Pocahontas County, West Virginia. He also enjoyed skiing, hiking, rafting, backpacking, and camping with his family.

Elizabeth (“Libby”) Hyde Moore '87 MF (1960–2020) of Freeport, Maine, passed away September 24, 2020. She worked as a municipal planning consultant and then as a forest ecologist at the University of Maine’s Holt Research Forest in Arrowsic. She earned her Master of Forestry at YSE, where she also met her husband, Bob Moore '86 MES. They moved to Maine; got married; and started their family on a saltwater farm, where they raised their three children. Moore wrote a blog, “The Coming Season,” which chronicled her love of natural processes and linked the seasonal cycles to the growth of her own family. Her children’s book, “The River of Birds,” was published this spring. She ran a private reiki practice and was on founding boards of Maine Interfaith Power and Light and the Red Canoe Foundation, co-leading creative and spiritual workshops.

Kennard G. Nelson '60 MF (1933–2020) passed away on February 6, 2020, in Seattle, Washington. He earned his BA in biology from Yale in 1954, while enjoying music as an extracurricular activity. He then returned to New Haven to claim his MF in 1960. Nelson taught for many years at Green River Community College.

Donald S. Page '51 MF (1924–2021) passed away on March 17, 2021, in Pennsylvania. Born and raised in the Boston area, Page joined the U.S. Army during World War II, fighting in the Battle of the Bulge and earning the Purple Heart and the Bronze Star for his service. He used the GI Bill to complete undergraduate studies at Harvard and earn his master’s at Yale. Page worked for many years as a personnel manager, retiring as a vice president with Asplundh Tree Expert Company. He is survived by four children and his wife of 69 years, Joanne, whom he met when they were working as camp counselors in Vermont.

Harold S. (“Bub”) Sheffield '50 MF (1920–2020) passed away on August 2, 2020, in New Hampshire. When World War II began, Sheffield — along with his lifelong buddy, Bill Weiland — joined the U.S. Marine Corps, serving in the South Pacific theater in America’s first true special operations unit, Carlson’s Raiders. In the Second Raider Battalion, Sheffield saw action in Guadalcanal, Tulagi, Emirau, Bougainville, and Guam. After 29 months of war, he attended Plymouth Teachers College and then YSE. He worked for Prescott Lumber Company and International Packing Corporation; started his own business, Millpond Casuals; and in his later years sold real estate. Age never defined how he lived or dictated what he could do. At 90, he decided to put his life experiences down on paper and write a book. He always seemed to have a copy handy, along with a pen to write a personal note, because he just knew you would want one.

Martin H. (“Mike”) Sokolow Jr. '72 MFS (1948–2020) passed away on September 20, 2020, in Camp Hill, Pennsylvania. Beloved big brother of Jane Sokolow '80, he graduated from Yale in 1970, where he majored in American studies, and earned his MFS in 1972. In 1981, he earned a JD from the University of Connecticut School of Law. Prior to attending law school, Sokolow taught elementary school and English. He loved teaching students and continued this mentoring spirit throughout his environmental law career. For almost 30 years he was regional counsel for the Pennsylvania Department of Environmental Protection (DEP) in the Harrisburg office. At DEP, Sokolow worked primarily on mining and water quality issues, helping to preserve and restore streams throughout Pennsylvania. He was a man of many interests. He grew orchids and clivias, cultivated wildflowers in his garden to attract butterflies, and was renowned for his homemade jam.

James F. (“Jim”) Thorne '82 MPhil, '85 PhD (1951–2020) of Media, Pennsylvania, passed away on December 31, 2020. Remembered for his exuberant smile, hearty laugh, and happy-go-lucky attitude, Thorne had a deep appreciation of nature cultivated during his childhood in Watertown, New York, which he passed on to his children and students. After graduating from YSE with his PhD, Thorne and his wife, Rosemary, moved to the Philadelphia area, where he began a teaching and research position with the University of Pennsylvania’s Graduate School of Landscape Architecture. He later worked at The Nature Conservancy of southeastern Pennsylvania, where he discovered a passion for prescribed fires as a management technique and spent a decade with Natural Lands Trust, where he played a critical role in the formation of the Hopewell Big Woods Partnership, a 73,000-acre conservation area encompassing the largest contiguous forest in southeastern Pennsylvania.

Arthur H. Westing '54 MF (1928–2020) passed away peacefully while resting on a bench with his wife, Carol, after a beautiful hike in the woods near their home in Shelburne, Vermont, on April 30, 2020. Westing received a Master of Forestry from Yale in 1954 and completed doctoral studies at Yale in 1959 in plant physiology and ecology. He spent nearly 24 years in academia, teaching at various institutions that included Purdue University, Middlebury College, Hampshire College (where he served as dean of the School of Natural Sciences), University of Massachusetts Amherst, and Windham College (where he served as department chair in biology). He worked for eight years at the Stockholm International Peace Research Institute and an additional two years at the Peace Research Institute Oslo. From 1989 to 2001, he was a visiting professor at universities in Ireland, Austria, Germany, and England. He conducted extensive research on the effects of chemical warfare, such as Agent Orange, on the environment.

Robert L. (“Bob”) Youngs '57 PhD (1924–2020) of Blacksburg, Virginia, passed away on April 25, 2020. Throughout his career, Youngs specialized in wood technology and forest resources conservation. He was recognized as an international expert in paper science, wood products, and tropical hardwoods. He worked for more than 35 years for the U.S. Forest Service, leading research programs in Madison, Wisconsin; New Orleans, Louisiana; and Washington, D.C. He served on the faculty of Virginia Technologic Institute and the State University College of Forestry later in his career and as online faculty for National Pingtung University of Science and Technology, Taiwan. Together with his wife, Esther, he led the establishment of the International Peace Garden on the Virginia Tech campus. He also participated in the development of the local Huckleberry Trail, supported Appalachian Trail preservation, and was an advocate for land and forest resource conservation programs and for the advancement of scientific education.

SOLAR IN THE AMERICAN MIND

A grant from the U.S. Department of Energy has YSE Associate Professor Ken Gillingham examining what influences the decisions Americans are making regarding solar energy and electric vehicles.

BY JOSH ANUSEWICZ

As a new administration signals renewed optimism for battling the climate crisis in the U.S., stubborn facts persist: Americans still rely heavily on fossil fuels and nonrenewable energy. Only 727,000 electric vehicles were sold in 2019 according to the Bureau of Transportation Statistics, compared to 17 million light-duty vehicles using gasoline. According to projections from the Solar Energy Industries Association, just 2.5 percent of U.S. homes will have solar installations by 2024; even fewer will use battery energy storage, a cleaner alternative to fuel-powered generators.

Ken Gillingham, associate professor of environmental and energy economics at the YSE, is exploring why American energy consumers make certain decisions. It is the focus of his new research project, funded by a \$1.6 million grant from the U.S. Department of Energy (DOE) aimed at advancing solar technologies across the country. The DOE announced in November 2020 that it was investing \$130 million in projects seeking to reduce the cost of solar, increase U.S. manufacturing competitiveness, and improve the reliability of the nation's electric grid.

Gillingham recently discussed his upcoming research project and the patterns and trends he hopes to find by developing field experiments and surveying citizens.

THERE ARE SEVERAL COMPONENTS TO THIS PROJECT. PLEASE WALK US THROUGH THE STAGES.

We're going to start by using actual data from installations of solar and installations of energy storage across the country to understand the patterns and trends in the adoption of solar and storage. We'll also examine some related effects: If you already use solar, are you more likely to adopt energy storage versus someone who hasn't adopted solar?

Then we'll do the same thing with electric vehicles, focusing on Connecticut, where we've already collected data: If someone buys an electric vehicle, are they more likely to adopt solar? And vice versa.

WHAT DO YOU HOPE TO LEARN FROM THIS?

Understanding these patterns and trends of where renewable energy is being adopted is really important for policymakers as they consider who's adopting now and what areas can be targeted to most likely lead to adoptions in the future. It will be useful for utility planners who need to know where the future demand for electricity will be. It will also be useful for renewable energy companies, giving insights on how to develop more targeted marketing based on the characteristics of potential consumers.

WHAT ARE THE FIELDWORK COMPONENTS OF THIS PROJECT?

We're focusing on energy storage and solar in Connecticut, a state that has shown positive growth in adopting solar energy and energy storage. Our weather here causes a lot of power outages, and solar and energy storage is a cleaner, more reliable alternative than fossil fuel-powered generators. We hope to run a set of campaigns to test theories using behavioral economics to understand what influences people to adopt solar energy and energy storage. What can we learn about consumer behavior, and when can we expect energy storage to begin to really take off?

We will also focus on solar adoption and energy efficiency in Alaska, a place where people have a strong sense of self-reliance but rely heavily on fossil fuels — both for their economy and their daily lives. Alaska is an especially interesting place to think about when studying energy efficiency and solar adoption.

WHAT ARE THE BIGGEST OBSTACLES FOR MORE WIDESPREAD SOLAR AND ELECTRIC VEHICLE ADOPTION?

Some of it is just information — it takes time to have solar plus storage systems installed and for homeowners to understand how solar energy works. But cost is also a real factor; prices are coming down, but while the price of solar energy is becoming more reasonable, the combination of solar and energy storage is still quite expensive. States like Connecticut offer incentives, but is it economically attractive?

And with vehicles, the cost is high and the offerings are limited. There aren't charging stations everywhere yet and people worry about being left high and dry — "range anxiety," we call it. There are a lot of positive conversations going on within the government right now about incentives for renewable infrastructure and electric vehicles. There are many people who believe we're headed in the right direction, regardless of government policy, but I think it's going to take time without real government action.

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