

CANOPY

SPRING 2022

THE FIRE PARADOX: A THREAT, BUT PART OF THE SOLUTION

YSE alumni are combining innovative forest restoration treatments with traditional land management methods to make ecosystems more resilient to destructive wildfires.

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When the Intergovernmental Panel on Climate Change (IPCC) released its latest report this spring (Sixth Assessment Report, Working Group III), like many of you, I felt alarmed by its stark analysis of the climate emergency and the breadth and scale of its impact — from intensifying threats from wildfires, heat waves, drought, rising sea levels, and natural disasters to disruptions in food systems and forced migration.

Yet it has also made me more determined than ever to continue working to create opportunities here at YSE for students and faculty to pursue the type of solutions-based scholarship that is critical if we are to avoid the direst impacts of climate change — and do so in a way that is just and equitable.

In this issue of *Canopy*, I hope you'll enjoy reading about some of the work on the GHG emissions different water bodies send into the atmosphere — factors that influence and could mitigate them — and the potential for enhancing the ability of coastal and marine ecosystems to store so-called “blue carbon.” You also can read about the work our amazing alumni and students are doing to better understand fire ecology and the role fire can play in land restoration. I am also excited about the new partnerships that we are forming — across Yale, the country, and internationally — that give us new opportunities to pursue our science-to-solutions scholarship. The Central Park Climate Lab, for example, is a first-of-its-kind initiative launched this year with the Central Park Conservancy and the Natural Areas Conservancy that is aimed at helping cities develop strategies to manage and mitigate the impacts of climate change on urban parks.

As always, I am looking forward to continuing this work with all of you. The dedication of our community — of our faculty, staff, alumni, supporters, and incredible students — never ceases to amaze and inspire!



Indy Burke
Carl W. Knobloch, Jr. Dean

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Peter Raymond, professor of ecosystem ecology, was in the Florida Everglades with students during the spring semester researching methane emissions and the storage potential of the blue carbon mangroves. See page 28 to read about their work.

ISAAC ZAPATA

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Sam Teicher and Gator Halpern (center) founded the Bahamas-based Coral Vita, which aims to rapidly grow coral species that are resilient to changing ocean conditions.

NEWS & NOTES

Coral Vita Wins Earthshot Prize

Coral Vita, the world’s first commercial land-based coral farming company for reef restoration founded by Sam Teicher ’15 MEM and Gator Halpern ’15 MEM, was named a winner of the inaugural Earthshot Prize. The startup was one of five winners of the £1 million grand prize awarded by Prince William, Duke of Cambridge, who established the global environmental competition to provide financial backing to scale up innovative solutions to the climate crisis.

“It’s the honor of our lives to have Coral Vita’s work and the global fight to protect coral reefs uplifted by winning the Earthshot Prize,” says Teicher. “We look forward to

scaling our efforts around the world and collaborating with local communities, scientists, governments, the private sector, and innovators to protect the ecosystems that sustain us all.”

Bahamas-based Coral Vita aims to grow coral species that are resilient to changing ocean conditions — at a rate up to 50 times faster than traditional growing methods. The company believes its methods could potentially supply coral for an entire country with just a single farm and envisions the Earthshot Prize jump-starting this effort to rebuild reefs around the world.

Teicher and Halpern arrived at YSE with

experience in marine biology and launched Coral Vita as students using seed funding from the Tsai Center for Innovative Thinking at Yale as well as funding from the Center for Business and the Environment at Yale. They have since won numerous prizes and plaudits for their work, including recognition from the XPRIZE Ocean Initiative, the Forbes 30 Under 30 list, and the U.N. Young Champions of the Earth Prize.

The five Earthshot winners were chosen from three nominees in five categories. Another nominee, Restor, was founded by former YSE postdoctoral fellow Thomas Crowther and is headed by CEO Clara Rowe ’15 MEM.

New Horizons Conference

For the second straight year, YSE hosted the New Horizons in Conservation Conference, an annual gathering of students and early-career professionals who are historically underrepresented in the environmental field and/or committed to diversity, equity, and inclusion in the field. The conference is organized by the Justice, Equity, Diversity, and Sustainability Initiative.

Panels covered a range of topics, including energy justice, food justice, land rights and reparations, disaster and resilience, environmental enforcement, environmental quality, and just transitions. Speakers included Brenda Mallory, chair of the Council on Environmental Quality in the Biden administration; Frances Beinecke ’71 BA, ’74 MFS, former president of the Natural Resources Defense Council; and Ebony Martin, co-executive director of Greenpeace USA.

“There is so much work to be done” on environmental justice, said Dr. Dorceta Taylor, who serves as senior associate dean of diversity, equity, and inclusion and professor of environmental justice at YSE. Taylor, who established New Horizons, opened the conference with findings from her ongoing research on issues of diversity and compensation among leadership in environmental organizations.

Father of Green Chemistry Awarded Prestigious Volvo Prize

Paul Anastas, Teresa and H. John Heinz III Professor in the Practice of Chemistry for the Environment, was awarded the 2021 Volvo Environment Prize in recognition of the transformative impact of his work across numerous sectors and industries. Anastas is considered the founder of the field of green chemistry — the design of products and processes to reduce or eliminate the use and generation of hazardous substances.

“Generations both alive and yet unborn have him to thank for prodigious amounts of toxins not created, pollution not released, resources not wasted, and cleanup costs not incurred as chemistry enriches our lives — now, thanks to him, far more thoughtfully and harmoniously with all life,” said Amory Lovins, co-founder and chair emeritus of the Rocky Mountain Institute.

Anastas headed the research program at the Environmental Protection Agency from 2009 to 2012, and his career includes stints at the White House Office of Science and Technology Policy and the American Chemical Society’s Green Chemistry Institute, which he founded in 1997. He is the co-founder and director of the Center for Green Chemistry & Green Engineering at Yale.

Crop Byproduct App Nabs Geneva Challenge Top Prize

A team led by YSE students Venu King ’22 MEM, Elaine Lac ’22 MEM, and Maximilian Schubert ’22 MEM won the Geneva Institute’s 2021 Geneva Challenge for creating an app that helps farmers find viable alternatives to burning harvest byproducts.

The app, called BuyBy, acts as a centralized marketplace that connects farmers with buyers who can use crop byproducts for inputs into sustainable textiles, pulp and paper, dyes, and biofuel. The concept is based on principles of the circular economy and industrial symbiosis, where waste products are reused and become valuable commodities in the marketplace.

The app currently focuses on the Punjab region of India — where emissions from the burning of byproducts accounts for 40% of New Delhi’s air pollution — but the students say the model is designed to be replicated and scalable.

“This project and the experience itself gave us validation of our ability to be entrepreneurial and that our solution is necessary and innovative,” King says.



Pictured here from left to right: Project BuyBy team members Elaine Lac, Stefan Faistenauer, Venu King, Maximilian Schubert, and Yiwei (Viviana) Li.



COURTESY OF CENTRAL PARK CONSERVANCY

Helping Cities Protect Their Urban Parks

YSE is partnering with the Central Park Conservancy and the New York City-based Natural Areas Conservancy in a new initiative to study the on-the-ground impacts of climate change on urban parks. The goal of the initiative, called the Central Park Climate Lab, is to work with cities across the U.S. to advance and implement urban park strategies to mitigate and adapt to climate change and understand how

these essential greenspaces could be used to create more resilient futures.

“Parks are essential for New Yorkers, as this last couple of years have proven, but flooding, high winds, and extreme temperatures pose a threat to their health,” says New York City Mayor Eric Adams. “The Central Park Climate Lab begins a new era in research and cooperation that will give our park

professionals improved tools to combat the climate crisis, and it will be a model for urban parks across the country.”

The initiative will include YSE Professors Karen Seto and Mark Bradford as well as Sarah Charlop-Powers '09 MEM and Clara Pregitzer '20 PhD from the Natural Areas Conservancy.



HAROLD SHAPIRO

LEADERSHIP COUNCIL 2022

YSE's Leadership Council returned to Kroon Hall April 21–22 for its first in-person meeting since 2019, with several members joining virtually as well. Presentations focused on exciting work underway at YSE in forests, carbon capture, equitable energy transition, and the potential of cities to drive climate solutions.

Yale President Peter Salovey joined the Council for remarks and a Q&A, during which he described YSE's leadership role in the University's new Planetary Solutions Project. Council members were delighted to spend time networking with each other, YSE's professors, and students during meals and engaging breakout sessions.

“It was wonderfully stimulating to be back together in person, gathering mutual inspiration from the many ways in which the YSE community is contributing solutions to climate change and other environmental challenges,” Dean Burke said.



At top: Leadership Council chair Tom McHenry '77 BA, '80 MFS addresses the group to kick off the two-day event.

Middle left: The faculty panel provided a succinct overview of important work underway at YSE.

Middle right: Dean Indy Burke with Tom McHenry and Yale President Peter Salovey.

Bottom: Members shared what draws them to the YSE community.



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RESEARCH UPDATES

Indigenous Nations in U.S. More Vulnerable to Climate Change

In a first-of-its-kind study, a team of researchers led by YSE Professor of Sociology Justin Farrell found that Indigenous nations across the U.S. have lost 98.9% of their historical land base and this land dispossession is associated with current and future climate risks.

The study, published in *Science* and made public in collaboration with the Native Land Information System, quantified the loss of Indigenous land since Europeans first settled in the U.S. More than 40% of tribes now possess

no federally recognized land. The study also found that historical land dispossession was associated with current and future climate risks. Indigenous peoples were forced to move to lands that are more exposed to a range of climate change risks and hazards and are less likely to lie over valuable subsurface oil and gas resources. Present-day lands endure, on average, an increased number of extreme-heat days compared to historical lands. Wildfire risks are also more severe for about half of all tribes.

“There is a violent legacy that persists today, and it remains critical that we try to understand it at large scales. This is not only for historical clarity around land dispossession and forced migration but for concrete policies moving forward: How can we use this information so that day-to-day lived experiences of Indigenous peoples are improved — so that existing inequities are righted and future risks mitigated?” Farrell says.

Need for Greater Focus on Environmental Justice for LGBTQ+ Community

More than 1 in 3 LGBTQ+ Americans faced discrimination of some kind during 2020, including more than 3 in 5 transgender Americans, according to the Center for American Progress. A new paper, published in the *American Journal of Public Health* by Michelle Bell, Mary E. Pinchot Professor of Environmental Health, and Leo Goldsmith '20 MEM, examines how the discrimination is putting the LGBTQ+ community disproportionately at risk to environmental exposures.

The paper identifies air pollution, environmental disasters, and secondhand smoke as having a disproportional impact on LGBTQ+ populations. It outlines recommendations including anti-discriminatory policies within health care and the federal government, policies to aid the ability of transgender and nonbinary individuals to obtain appropriate identification documents, and the incorporation of LGBTQ+ issues into environmental justice research and organizations.

YSE Industrial Symbiosis Research Spurs Partnership with World Bank

A new World Bank platform, based on YSE’s research through the Center for Industrial Ecology, is helping to promote opportunities for the reuse of waste materials — a process known as industrial symbiosis — across a worldwide digital marketplace.

The platform will help foster industrial symbiosis opportunities in Eco-Industrial Parks, particularly in developing countries. The data will include information on renewable technologies, waste management strategies, and environmental performance.

YSE PhD student Koichi Kanaoka has been working under the direction of CIE Director Marian Chertow, professor of industrial environmental management, to identify companies that can utilize each other’s byproducts for the platform — including those in the U.S.

“The idea is to try to avoid waste by maximizing the number of possible exchanges among the companies,” says Chertow, who is leading the partnership with the World Bank.



LUKASZ MACHOWCZYK / SHUTTERSTOCK



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Electric Vehicles Have Emissions Advantage over Conventional Vehicles

Some analysts have raised concerns over how green the electric vehicle industry is, focusing particularly on indirect emissions caused within the supply chains of the vehicle components and the fuels used to supply the power that charges the vehicles.

A new study published in *Nature Communications* shows that the total indirect emissions from electric vehicles pale in comparison to the indirect emissions from fossil fuel-powered vehicles.

A research team, which included YSE Environmental and Energy Economics Professor Ken Gillingham, combined carbon pricing, life cycle assessment, and modeling energy systems to compare fossil fuel and electric vehicles.

“A major concern about electric vehicles is that the supply chain, including the mining and processing of raw materials and the manufacturing of batteries, is far from clean,” says Gillingham. “So, if we priced the carbon embodied in these processes, the expectation is electric vehicles would be exorbitantly expensive. It turns out that is not the case.”

Poor Households in India Bear Brunt of Pollution Effects

Poorer households in India are bearing a disproportional impact from pollution caused by others, a study published in the journal *Nature Sustainability* found.

YSE Associate Professor of Energy Systems Narasimha Rao, the study’s lead author, said the data will likely hold for other countries with similar issues.

The study is the first to analyze and review how different households contribute to air pollution. It also examines the impact of the pollution on households according to income level and defines a new pollution inequity index.

While industrywide pollution controls can reduce inequity in the impacts of ambient air pollution, providing low-income households with clean cooking fuels remains the most effective way to reduce the number of premature deaths from air pollution in India, the authors concluded.



DIDIER MARTI / SHUTTERSTOCK

Planning Cities for Sustainable Biodiversity

Within the next 30 years, the global urban population is projected to increase by 2.5 billion people, which will increase urban spread by 1.53 million square kilometers, directly threatening 855 species, according to the findings of a new study published in the *Proceedings of the National Academy of Sciences of the United States of America*.

The study relied on data from Yale’s Map of Life — a collection of species distribution data. The cities that pose the greatest threat to species due to expansion are predominantly located in the developing tropical regions of sub-Saharan Africa, South America, Mesoamerica, and Southeast Asia.

“Cities are actually part of the solution,” says Karen Seto, Frederick C. Hixon Professor of Geography and Urbanization Science, who co-authored the study with PhD student Rohan Simkin; Walter Jetz, director of the Yale Center for Biodiversity and Global Change and professor of ecology and evolutionary biology; and Robert McDonald, lead scientist for nature-based solutions at The Nature Conservancy. “We can build cities differently than we have in the past. They can be good for the planet; they can save species; they can be biodiversity hubs and save land for nature.”

2021 YSE ALUMNI ASSOCIATION AWARD WINNERS

From Bhutan's national parks to Brazil's tropical forests to U.S. college campuses, 2021 YSE Alumni Association Award winners — Dechen Dorji, Daniel Piotto, and Nan Jenks-Jay — are making a difference for the health of our planet.



Sustaining the Financing to Preserve Bhutan

Dechen Dorji '01 MEM, who was an international student at Yale from Bhutan, began his conservation work in the country's remote eastern region and soon started playing a key role in the country's constitutional mandate to remain carbon neutral for its entire existence.

Dorji came to Yale after meeting YSE's Frederick C. Hixon Professor Emeritus of Natural Resource Management William Burch, who was working in Bhutan. After graduation, Dorji returned to his country to work on community forestry and helped lead efforts to preserve its forest cover, which sequesters about three times more carbon dioxide than the country's total population of about 800,000 emits. He helped raise \$40 million for the sustainable financing of Bhutan's park system under the Bhutan for Life initiative.

As the World Wildlife Fund's senior director for the Asian Wildlife Program, Dorji continues to work on land preservation and the protection of endangered and threatened species.



Reducing the Carbon Footprint on College Campuses

In her more than 20 years in higher education, Nan Jenks-Jay '86 MEd has been a leading voice for environmental education and sustainability in higher education, catalyzing environmental programs around the country and globally.

During her time at Yale and graduate school, Jenks-Jay says attending lectures by visionary leaders, studying collections at the Peabody Museum, and reviewing rare works at the Beinecke Library influenced her trajectory in life.

"I was truly influenced by faculty whose research and publications were cross-disciplinary with other scholars. Subsequently, collaborations became the foundation of my work," she says. "I gained the confidence to be a calculated risk taker, moving bold ideas ahead with diplomacy and perseverance."

In 1998, she was appointed dean of environmental affairs at Middlebury College — a position she would hold for the next 23 years. It was there that she hit her stride.

Middlebury began to reduce its carbon footprint in 2001 and set an initial goal to lower all carbon emissions to 8% below 1990 levels by 2012. With Jenks-Jay's help and support from students, Middlebury reached carbon neutrality in December 2016.

"I think you have to look for opportunity because just like inspiration, it's out there," she says. "You need to watch trends and be a predictor and forecaster as opposed to a reactor. Because if you're a reactor, you're already behind the game."



Fighting to Save Brazil's Tropical Forests

Daniel Piotto '06 MF, '11 PhD first met renowned forestry professors Mark Ashton, Morris K. Jesup Professor of Silviculture and Forest Ecology and senior associate dean of The Forest School, and Florencia Montagnini, senior research scientist, while earning his master's degree in forest management at Centro Agronómico Tropical de Investigación y Enseñanza in Costa Rica. They were working on what would become YSE's Environmental Leadership & Training Initiative (ELTI).

That first meetup convinced Piotto to apply to YSE — a decision that ultimately led to a master's degree, a doctorate, and YSE-supported trips to forests across the world that expanded his knowledge of different forest biomes and how to manage forest resources. He recently has led studies on forest restoration and plantation forests in the Bahia region of Brazil and is hoping his work in forest restoration and plantation forestry can help counter devastating tree loss and fires in one of the country's "last frontiers."

"I've dedicated my life to studying this, so I remain optimistic. These forests can grow back," says Piotto. "I'm not optimistic that people are going to change their behavior in the short term, so now we ask, 'How can we adapt?' Planting trees, managing these forests — that is going to be a very important component."



Carlos Velazquez (right) worked to restore trails in El Yunque Rainforest in Luquillo, Puerto Rico, in winter 2020.

Fostering Roots of Resilience

After seeing Hurricane Maria devastate his home, Carlos Velazquez hopes to use what he learns at YSE and in a joint degree engineering program in China to return to Puerto Rico to help create a new framework for disaster relief focused on vulnerable communities.

BY THOMAS BIRMINGHAM

For Carlos Velazquez '22 MEM, nature was always about family. He remembers taking the drive down to Guayanilla, Puerto Rico, to visit his great aunt's house, running outside through the rain with his cousins, and waiting for the water in the nearby brook to rise so they could splash in the fleeting little pools that emerged.

But when Hurricane Maria struck in 2017, Velazquez's relationship to the environment changed. After seeing the landscape of his childhood littered with debris, he became much more protective of his environment — of the trees, the water, and the land that had given him so much joy all through his childhood.

"The entire island was hit hard," Velazquez says. "My family were among the lucky ones. Coming back home, seeing the devastation, and participating in relief efforts is what brought me into disaster resilience and recovery."

After completing his undergraduate work in environmental engineering at Georgia Tech, where he researched effective hurricane responses, Velazquez says he was drawn to YSE's environmental management program and the range of courses it offers including stormwater management, coastal engineering, and cultural management. His focus is on natural ecosystems.

Velazquez also was interested in the opportunity to enter a dual-degree program in engineering with Tsinghua University in China. As an undergraduate, Velazquez had studied abroad in Tsinghua and met a student enrolled in the unique program. After speaking with her, he realized it was exactly what he wanted to do after graduation. The program enables Yale students to enhance their expertise in key areas of environmental engineering, including industrial systems, pollution management, water treatment, and energy technology.

Another opportunity to broaden his skill set came last summer when Velazquez interned with YSE's Urban Resources Initiative to pursue New Haven community forestry projects. The time spent helping small communities plan and implement their environmental goals as an intern was invaluable, he says. It gave him the opportunity to learn skills that will help him assist communities in the future, including his home in Puerto Rico.

Chris Ozyck, Velazquez's supervisor at URI, praises his undying can-do attitude and how he earnestly approaches every situation as a learning opportunity.

"In my world, he's a rock star," Ozyck says. "His rapport with people was endearing, and everybody in the community felt that he was in the struggle with them, not that he was an outsider. It's magic when that happens. I've seen hundreds of students over the years, and he's in the top five."

Velazquez says his experience at YSE has given him a clear direction.

"More than the classes and the degree, my YSE experience has truly been defined by the people I've met and the stories they've shared. The vast spectrum of backgrounds, life experiences, and career paths has opened my eyes to the near limitless amount of ways I can choose to make a positive difference in the world," he says.

His ultimate goal is to return home to Puerto Rico and use the skills gained at YSE to try to create a new framework for disaster relief on the island — one more heavily centered around local communities.

"There must be major reforms in order to come back from a storm like Maria," Velazquez says. "I want to make sure that, as these reforms happen, the focus is communities that have less resources when disaster strikes." ❖



“My YSE education was a perfect primer for working in a small island, where you have to be a jack of all trades. I relied on everything from GIS to policy synthesis training, mock climate negotiations, and green finance coursework.”

Lia Nicholson '14 MEM, a native Antiguan and climate advisor to the Alliance of Small Island States (AOSIS), speaks during an intervention at an informal plenary during the COP26 U.N. Climate Change Conference in Glasgow, Scotland.

IAN FORSYTH / GETTY IMAGES

Who Will Speak for the Islands?

Lia Nicholson, a native Antiguan, serves as climate advisor to the Alliance of Small Island States — a job which carries troublingly existential stakes but one for which she is eminently well suited.

BY DYLAN WALSH '11 MEM

The numbers alone can be abstract, clinical. It is difficult, when considering climate change, to envision the difference between a global temperature rise of 1.5 degrees Celsius over the preindustrial baseline and a rise of 2 degrees. “But for us, it’s existential,” says Lia Nicholson ’14 MEM. “We all need to recognize that the difference in those temperatures has huge costs for small islands.”

Nicholson traveled to Glasgow at the end of 2021 to attend the 26th annual Conference of the Parties — or COP26 — hosted by the U.N. Framework Convention on Climate Change. There, she served as lead negotiator for the Alliance of Small Island States. This bloc of 39 small island nations, which together comprise 20% of all U.N. member states, joined forces 30 years ago in an effort to amplify common concerns around the changing climate. (AOSIS has since adopted positions on issues of sustainable development and ocean conservation.)

Nicholson was born and raised on Antigua, where one of her early childhood memories is the world-ending intensity of a Category 5 hurricane passing over her house. She was involved in environmental issues from a young age and, in college, wrote her thesis on the problem of soil erosion due to colonial grazing practices. She was drawn to the

Yale School of the Environment because of its focus on the applied management of environmental policy and principles. There, she worked with several “excellent professors,” she says, and shifted her concentration to the concern of climate change.

After graduation, Nicholson returned to Antigua and began a job in the island nation’s Department of the Environment. Although most of her efforts centered on local environmental issues, the work had an international feel, as Antigua is part of a “mini-EU of regional islands,” as Nicholson puts it. She also found herself increasingly enmeshed in the world of international institutions as she pushed to secure \$30 million of climate finance for Antigua for adaptation and restoration measures.

“My YSE education was a perfect primer for working in a small island, where you have to be a jack of all trades. I relied on everything from GIS (geographical information systems) to policy synthesis training, mock climate negotiations, and green finance coursework,” Nicholson says.

After four years in Antigua, she spent two years with the C40 Cities Climate Leadership Group as technical advisor in West Africa, based in Lagos, and then in early 2021 rejoined the Antigua and Barbuda government in her current role at AOSIS — a two-year term that is halfway done. When thinking about the recent work at COP26, Nicholson describes success on some fronts despite the conference’s sprawling nature.

“I was inspired by the way Lia was able to take in all the information at an event like COP26 and respond in a rational and thoughtful way,” says Jillian Aicher ’23 MEM, who worked alongside Nicholson at COP26 by way of the class “International Organizations and Conferences.” (Nicholson also took this class and served as a teaching assistant for one semester.) “With all that was happening, she remained an incredibly effective advocate for the goals and mission of AOSIS.”

Most notably, Nicholson points to the call to phase out fossil fuel subsidies. But even with this win, huge questions of financial responsibility and moral accountability remain unanswered, and to these she continues to commit her energies.

“The COP is a moment, but as soon as 26 ended we started to plan for 27,” she says.

The gains of last year propel the demands of this year.

“How do we cut emissions faster and make more climate finance available to small islands? We’re on a trajectory to overshoot 1.5 degrees, but 1.5 must be our ceiling,” says Nicholson. ♣



Claudia Ochoa (center) worked with the team from Barberrry Hill Farm to market its products at the farmers market in New Haven's Wooster Square in July 2021.

Listening to and Learning from Farmers

Environmental lawyer Claudia Ochoa learns up close how independent farmers are adapting to climate change.

BY THERESA SULLIVAN BARGER

Claudia Ochoa '22 MEM has worked on climate change issues at the national and international levels, but her internship at a New Haven nonprofit taught her that real change starts at the local level — with the farmers.

Ochoa, an environmental lawyer from Peru, learned about how farmers are problem-solving and adapting to climate change while working for CitySeed, a New Haven-based nonprofit that promotes economic and community development and sustainable agriculture. It is run by Cortney Renton '20 MEM.

Heat waves, unpredictable and extreme weather, and soil degradation — all symptoms of climate change — have made farming much more difficult.

To dig deeper into the challenges farmers are facing, she immersed herself in CitySeed's network, listening to the people it serves so she could help write grants for it. She met with immigrant and refugee chefs from several nations who prepare meals at CitySeed's Sanctuary Kitchen, cooked meals herself, and visited the farmers market every Saturday.

"I'm convinced that most of the solutions already exist. The knowledge comes from the vendors in the farmers market," she says.

To adapt to climate changes, farmers are making several modifications, including finding more suitable locations to grow their fruits and vegetables, switching to different varieties, and amending harvest and transportation techniques, Ochoa learned. For example, climate change conditions have made red tomatoes less flavorful, so farmers are growing more yellow tomatoes, which better maintain their flavor in drought conditions. To adapt to heavy rain in shorter periods of time — which causes fruit grown in fields, such as strawberries, to become waterlogged and lose their sweetness — farmers have added soil to elevate the fruit and allow excessive water to flow away from the roots and plants. In the past, farmers were able to transport their fruit to market without refrigeration, but extreme summer heat has caused the fruit to overripen on the trip. So they have started packing their produce in ice and coolers to keep it from spoiling.

"It is all about knowing more about the projections of climate and how it will affect different things: land, water, biodiversity, and other factors," she says.

While at YSE, Ochoa says she gained valuable knowledge of forests that will help in her future environmental law work with developers. Through her silviculture class and experience at Yale-Myers Forest, she developed a better understanding of different ecosystems and forest management techniques used to protect biodiversity and help forests adapt to climate change.

That hands-on, lived experience was unlike anything she could learn from a book, and it deepened her understanding of land use issues, the history of the land, Indigenous communities, and biodiversity, she says.

After she completes her master's degree, she plans to enroll in a doctoral program in social sciences and continue working on climate change and biodiversity projects that allow her to connect local actions to global solutions.

"We need to listen to the people who already have the tools and knowledge to adapt to climate change," Ochoa says. "Maybe there are not enough people at the national and international level listening to those voices." 🌱



The power of dry forest restoration after the 2021 Bootleg Fire in Oregon's Sycan Marsh Preserve — unrestored lands to the left and resilient, healthy ponderosa pines to the right.

THE FIRE PARADOX: ***A THREAT, BUT PART OF THE SOLUTION***

YSE alumni are combining innovative forest restoration treatments with traditional land management methods to make ecosystems more resilient to destructive wildfires.

BY JOSH ANUSEWICZ

BRADY HOLDEN

The ponderosa pine is a survivor. The most widely distributed pine species in North America, stretching across the western part of the continent from British Columbia to parts of Mexico, *Pinus ponderosa* has distinctively thick and aromatic bark, large bright-green needles, and prickly cones. Many of them soar over 200 feet into the air — with tall, straight, thick trunks.

Like most flora, these adaptations are beneficial. The native lands of the ponderosa pine are also home to some of the most violent and destructive recent wildfires on our planet. In 2020 alone, 52,113 wildfires burned nearly 9 million acres of land, mainly in the U.S. West — roughly 2.3 million more acres than the 10-year average and almost double the acreage burned in 2019, according to the National Interagency Fire Center.

Frequent, low-intensity fires are, in fact, essential for ponderosa pine forests and other native plant and animal species, which have adapted over millennia to survive these conditions. Over time, ground fires have burned seedlings and saplings, accumulations of pine needles, and low branches, leading to low-density, open ponderosa pine forests with few “ladder fuels” to move fires into the canopies. Fire suppression efforts, however, have reversed this trend, leading to denser stands and high fuel conditions, creating a greater propensity for stand-replacing canopy fires in which few trees survive.

Pete Caligiuri '10 MF knows this seems paradoxical. Raging wildfires destroy acres of forests, wipe communities off the map, pollute our skies, and put animals at risk of extinction. How can fire be good?

“Frequent, extreme wildfires are a threat, but fire has to be part of the solution,” says Caligiuri, the forest strategy director for The Nature Conservancy in Oregon. “Fire always has been a part of these landscapes. Beneficial fire — like prescribed burns and managed wildfires — is essential to the long-term resilience of these forest landscapes into the future.”

But scaling up efforts to build resilient landscapes can take a long time; adaptation of species, considerably longer. Fueled in large part by our rapidly changing climate, fires are raging in places and during times of the year that are unprecedented, raising the urgency to understand the impacts increasing wildfires have on our ecosystems.

And, right now, it appears adaptation may be our best bet.

“Our human history is tied to our ability to use fire,” says Jennifer Balch '08 PhD, associate professor of geography at the University of Colorado and director of the school's Earth Lab. “It pervades our history, our evolution as a species. Many have forgotten how integral fire is to our human existence.”

“We can't live without fire.”

Nearly two decades ago, Jennifer Balch was a PhD student at YSE who found herself deep in the Amazon rainforest. She was there to see what happens when you set it on fire.

Tropical rainforests do not traditionally burn, and the reason for that is right in the name. Moisture within the vegetation and the soil usually prevents any wildfires from starting or at least spreading. The fuel sources for wildfires we see in temperate forests or grasslands are usually not present.

But with drums already beating from the scientific community about the rapidly changing global climate, Balch was curious: What *would* happen if the Amazon burned?

Playing the role of “burn boss,” Balch led an unprecedented, experimental large-scale burn of 370 acres of forest and monitored the effects for a decade. “What we found was a closed-canopy tropical forest that turned into something vastly different,” Balch says.

At the edge of the burned area, there was “basically a grassland system,” she says. The canopy lost roughly 60% of its trees, opening a lane for native and invasive undergrowth to now thrive. Even the behavior of leaf-cutter ant colonies — which move leaf litter and other potential fuel sources — had changed.

In recent years, a combination of the changing climate and intentional burning for agricultural and mining purposes has created an exponential surge in fires in the Amazon. Brazil's National Institute for Space Research reported that more than 39,000 fires were detected via satellite in the Amazon in 2019, a 77% increase from the previous year. The world's most critical ecosystem, essential for the natural capture of global carbon emissions, was engulfed in flames — and the world was beginning to take notice.

“Ecosystems are already changing,” says Balch. “Humans are changing the climate and the landscapes, and we're seeing increased fire as a result. We're providing the ignition, with invasive vegetation doubling and tripling the amount of fire.”

COURTESY OF THE NATURE CONSERVANCY



The Bootleg Fire burned more than 413,000 acres of land across south central Oregon in summer 2021, requiring more than 2,000 firefighters to battle the blaze.

“Fire always has been a part of these landscapes. Beneficial fire — like prescribed burns and managed wildfires — is essential to the long-term resilience of these forest landscapes into the future.”

PETE CALIGIURI '10 MF



As the forest strategy director for The Nature Conservancy in Oregon, Pete Caligiuri '10 MF helps oversee the Sycan Marsh Preserve, a “living laboratory” used to develop ecologically based restoration treatments that make ecosystems more resilient to fire.

Today Balch focuses her research closer to home, in the American West. In a recently published paper in the journal *Nature*, she outlines the rise in nighttime fire intensity, signaling hotter temperatures at night than during the day. This, she says, means fires are passing from day to night, losing breaks in fire intensity that are critical for those fighting wildfires.

Six years ago, Balch established Earth Lab at the University of Colorado, a data synthesis center that applies analytics to Earth systems data to make new breakthroughs and help society adapt to the changing world. A major initiative of the lab focuses on environmental extremes and natural hazards, particularly how fire regimes are changing in the U.S. Researchers are studying changes in fire seasons, the proportion of fires that are started by humans versus natural causes, the conditions in which fires occur across the U.S., and if there are predictors for large fire events.

Their work is being quickly put to the test. In 2021, a wetter than normal spring led to above-average grass growth in Boulder County, Colorado; a warm and dry summer and fall, coupled with high winds, created the perfect conditions for a wildfire. The resulting Marshall Fire in early 2022 burned more than 6,000 acres and destroyed more than 1,000 buildings.

“Fires shouldn’t be burning in the winter,” says Balch, who has seen people close to her lose their homes to the fires. “I’ve only seen snow put out a fire once before this year — and that was last year. It just makes me ask, ‘What is going on here?’”

Balch and Earth Lab are using their experiences to sound the alarm, sharing knowledge and tools with other communities about how to make ecosystems more resilient to wildfire. She says that while there is space for “good fire,” there are more than a million homes within wildfire areas in the U.S. and more than 59 million more within one kilometer of these spaces. Balch believes that new measures introduced by the federal government, including prescribed burns and fuel mitigation, have the potential to help, but she stresses the need to create more science-informed solutions.

“There is so much at stake,” Balch says. “The science community needs to step it up; we need to stop documenting the problem and start the rallying cry. Everyone needs to do their part to get ahead of this.”

Pete Caligiuri has also had his close calls with wildfires. Located in the arid landscapes of central and southern Oregon, not far from where he grew up in Bend, he has spent a decade with The Nature Conservancy working on dry forest restoration.

“This area has all the necessary ingredients for fire,” says Caligiuri. Last year, those ingredients cooked up the devastating Bootleg Fire, which burned more than 413,000 acres of land across south central Oregon, requiring more than 2,000 firefighters to quell the blaze. It was the second largest wildfire in the U.S. in 2021, leading to poor air quality conditions as far away as New England.

The enormous fire created a real-life test for Caligiuri and his TNC colleagues, who oversee the Sycan Marsh Preserve, a 30,000-acre property in south central Oregon that features a diverse range of high-elevation marsh and dry forest habitats as well as countless ponderosa pines. The preserve is used as a “living laboratory,” allowing researchers to conduct ecologically based restoration treatments to create a more resilient ecosystem. Many of the strategies used are developed and implemented in partnership with the local Klamath Tribes, who have stewarded this sacred land for centuries.

“As the Bootleg Fire started and we saw it was headed toward the preserve, we realized we were about to learn something,” Caligiuri says. And what they have learned so far is promising: “Reintroducing fire is very important. Even under the very extreme conditions of the Bootleg Fire, we see that the reintroduction of lower-intensity fires — similar to those that have historically burned through this area — has had significant positive impact on the forest. In those places where we have successfully reintroduced fire, the forest is green and still providing habitat and ecosystem benefits.”

“It was a wakeup call,” he adds. “The scale of the work we’re doing on the preserve is relatively small, and we really need to increase the scale and pace of ecological restoration. The people who need these lands — the tribes, local communities, all of the stakeholders — are depending on us getting to a larger scale. And part of it is learning to live with fire: managing fire under milder conditions to achieve the ecological and cultural benefits when and where it’s possible and containing and suppressing fire when needed to protect lives and communities.”

While climate change is indeed a cause for the increase in wildfires,

Caligiuri points to a history of unsustainable forest management in the western U.S. for laying the groundwork for the current situation. This began, he says, with the forced removal of Indigenous peoples, followed by the introduction of domestic livestock that ate the native, grassy understories that served as a “conveyor belt for fire,” and the subsequent widespread logging of the fire-tolerant ponderosa pines. He also argues that the U.S. Forest Service’s interest in fighting lower-intensity fires throughout the 20th century has resulted in less “good fire” and created a much different landscape — dense forests full of small trees and undergrowth.

“Fire in the area was once a self-regulating process in these forests,” Caligiuri says, relying on both scientific research and Indigenous knowledge. “Now, in the unhealthy condition these dry forests are in today, we’re just waiting for the next lightning bolt or careless person to spark the next wildfire.”

Like most of the American West, much of Oregon’s 19 million acres of dry forests are under federal jurisdiction where renovation techniques are prohibited — and nearly 4 million of those acres need ecological restoration, according to TNC and the U.S. Forest Service. In response, the Sycan Marsh Preserve has become a place where researchers can test different ecological restoration treatments in hopes of creating more resilient dry forests in a way that is scalable across Oregon and the western U.S. Caligiuri says TNC’s goal is to create a base for fundamental policy changes in forest and fire management needed to create resilient, adaptable landscapes in the face of climate change. He highlights positive change taking place, including new policy in Oregon that invests in community-level efforts and infrastructure as well as the new Infrastructure Investment and Jobs Act that has made billions of dollars available to support federal land management agencies to proactively address forest resilience and wildfires.

“It can’t be a business-as-usual approach,” he says. “We need to reexamine how we live in and around these landscapes and work together, across organizations and ownership boundaries, to restore them in a way that allows us to live more compatibly with fire.”

Wildfires and the Future of Forests

It is not only the western U.S. or the Amazon being affected by wildfires; vast swaths of Africa, Asia, and Europe have experienced devastating, costly fires in recent years. The Australian bushfires in 2019–2020, dubbed the “Black Summer,” claimed an estimated 60 million acres of land and dealt an unfathomable blow to the country’s unique biodiversity.

“It will be a long time ... before the entire region recovers, before the forests that cover these landscapes recover,” Patrick Baker ’93 MF, a professor of silviculture and forest ecology at the University of Melbourne, told the *Yale Daily News* in January 2020.

Gracie Bachmann ’23 MF, who has worked as a wildland firefighter, has seen intense fires burn in Oregon, Arizona, and Colorado. Through internships and professional experience, she has also seen fires in Costa Rica, Ecuador, and Senegal.

As a student, Bachmann is now one of the leaders of the Fire Student Interest Group, helping to lead programs for YSE students about fire ecology and land management. Her academic interests focus on understanding fire in tropical landscapes — much like Balch before her — but she also works closely with Matt Valido ’21 MF, forest manager of Yale School Forests, on fire in temperate forests. She has helped Valido create curriculum opportunities for students interested in wildfires and has led prescribed burns at Yale-Myers Forest.

All of this to say: Bachmann is fully invested in the future of fire on our landscape and the role it plays in our ecosystems.

Wildfires affect every corner of the globe. They change the world we live in — and have for millennia. That wildfires are more frequent and more intense is a global concern, but not one that cannot be handled with immediate and well-managed action. The clock, however, is ticking.

“If you care about having clean water and clean air, you should care about fire,” says Bachmann. “Fire alters how our forests grow, the flora and fauna that they support, and, from a carbon perspective, we need our forests. They also can regulate our weather. They provide recreation space.

“A burned forest is not just a scarred landscape. It affects you and the people you know. At some point or another, it will feel real for all of us.” ♣

“If you care about having clean water and clean air, you should care about fire. ... A burned forest is not just a scarred landscape. It affects you and the people you know. At some point or another, it will feel real for all of us.”

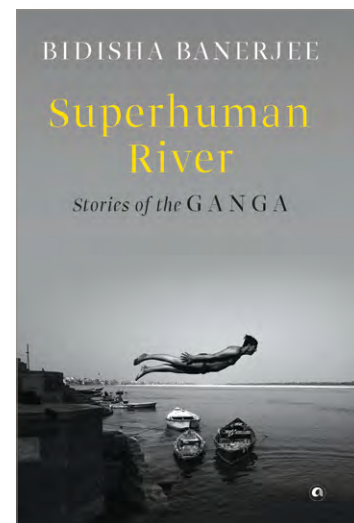
GRACIE BACHMANN ’23 MF



Gracie Bachmann '23 MF arrived at YSE with considerable experience with wildfires, previously working as a wildland firefighter in Colorado, Arizona, and Oregon.



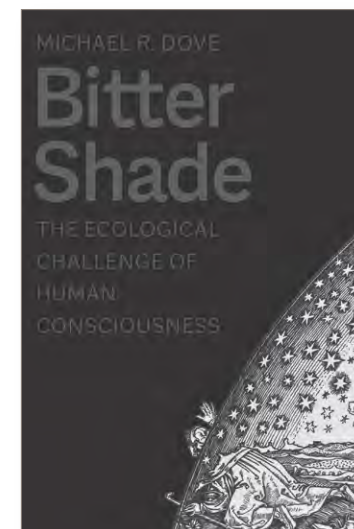
AAKASH CHAKRABARTY



Superhuman River: Stories of the Ganga

Bidisha Banerjee (Aleph)

Physically, the Ganga River originates in the Himalayas and winds through India and Bangladesh before emptying into the Bay of Bengal, creating the world’s largest mangrove system. Mythically, the Ganga begins in the Milky Way and extends into the underworld. In this decade-long tale of adventure, Bidisha Banerjee ’10 MESC weaves concepts of ecology, anthropology, and spirituality to show humans trying to locate themselves in relation to what she calls a “superhuman river.” “For now, in an age of climate change,” she says, “we have the power to impact the Earth and its future in ways unimaginable before.”



Bitter Shade : The Ecological Challenge of Human Consciousness

Michael R. Dove (Yale Press)

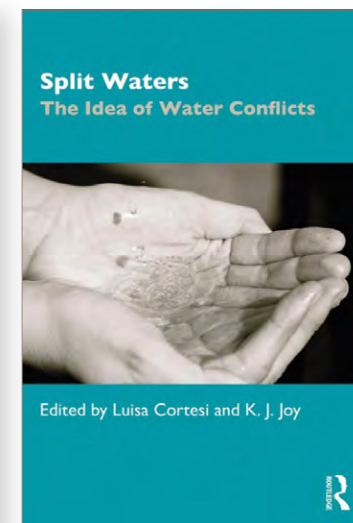
How can we achieve sufficient distance from our own everyday realities to think and act more sustainably? In this anthropological book, Michael Dove, Margaret K. Musser Professor of Social Ecology at YSE, leans on his extensive research in South and Southeast Asia on how local cultures have approached the “curse of consciousness” — the paradox that we cannot completely comprehend the ecosystem of which we are a part. Dove highlights three transcending principles: perspectivism, or how we see oneself from outside oneself; metamorphosis, or how to become something that we are not; and mimesis, or how we copy something we are not.



Forensic Forestry: A Guidebook for Foresters on the Witness Stand

Robert P. Latham (CRC Press)

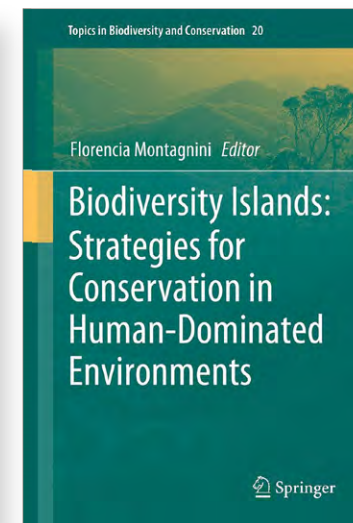
Now a semi-retired professional forester and economist, Robert Latham ’63 MF relied on decades of experience to pen this unique hands-on resource for forestry and land use professionals called upon to work on legal cases and testify in court. These issues, particularly in the U.S., are becoming increasingly important — and contentious — and require considerable knowledge of the legal system in addition to technical expertise of our forestlands. Written for those who serve as expert witnesses or consultants to attorneys, the book also outlines real-world case studies that describe evidence used in legal proceedings and the testimony that was provided.



Split Waters: The Idea of Water Conflicts

Edited by Luisa Cortesi and K.J. Joy (Routledge)

This collection of essays, co-edited by Luisa Cortesi ’18 PhD, investigates common narratives about water scarcity to make readers rethink water conflicts and how they are commonly understood and managed. Using case studies from around the world, “Split Waters” goes in-depth on how water conflicts begin and who is involved, finding deeper meaning to create alternative agendas that change the conversations among scholars and activists. Cortesi has received numerous awards for her research on water systems, including the 2019 Theron Rockwell Field Prize, a prestigious Yale-wide award that honors scholarship of poetic, literary, or religious value.



Biodiversity Islands: Strategies for Conservation in Human-Dominated Environments

Edited by Florencia Montagnini (Springer)

Florencia Montagnini, a senior research scientist and director of the program in tropical forestry and agroforestry at YSE, has written a dozen books and more than 250 articles about the ecology of tropical forests, agroforestry, and native species and forest landscape restoration. Her latest work provides an overview for the identification and establishment of “biodiversity islands” — sections of land where plants and animals thrive without human interruption. The book — intended for a wide range of people, from farmers to land managers to policymakers — presents real-world examples of successful biodiversity islands and offers design parameters for sizing and spatial distribution for effective conservation and regeneration.



EXPLORING THE DEPTHS OF WATER'S ROLE IN CLIMATE CHANGE

Aquatic ecosystems play an essential role in the greenhouse gas emissions cycle. Water bodies can sequester carbon — and they can also release emissions. Reducing these emissions and exploring ways of increasing their potential for carbon uptake is at the center of new climate research at YSE.

BY FRAN SILVERMAN

COVERING NEARLY THREE-QUARTERS OF THE EARTH, SURFACE WATER PLAYS A CRITICAL ROLE IN THE CARBON CYCLE OF THE PLANET BY STORING AND ALSO EMITTING GREENHOUSE GASES. BUT EXACTLY HOW MUCH OF A ROLE IT PLAYS AND ITS POTENTIAL TO HELP MITIGATE CLIMATE CHANGE IS STILL A QUESTION.

To get answers, Yale School of the Environment researchers are calculating the amounts of greenhouse gas emissions that different water bodies emit into the atmosphere, factors that influence and could mitigate these emissions, and the potential of blue carbon — oceans and coastal ecosystems — to sequester carbon.

In the past year, Ben Girgenti '22 MESC has been chest deep in mud at the Yale Nature Preserve to create buckets of mini wetlands to test methods for reducing emissions.

In Vermont's Northeast Kingdom, YSE Professors Peter Raymond and Jim Saiers, joined by their colleague Yale Associate Professor of Earth and Planetary Sciences Noah Planavsky, are working together with a team of students to spread crushed rocks on a watershed.

And in the southern U.S., Jonathan Gewirtzman, PhD student, and Frannie Adams '23 MESC are measuring methane emissions to explore the effects of climate-driven disturbances in the Florida Everglades.

They are among several YSE researchers working on two key projects involving water ecosystems: reducing emissions and increasing carbon uptake.

THE EMISSIONS FACTOR

As world leaders seek to keep global warming to 1.5 degrees Celsius over preindustrial times to avoid the most devastating and widespread impacts of climate change, deepening our understanding of how much the emissions of water bodies contribute to the global budget has become an increasing focus of the international scientific community.

Up until 10 years ago, there was no definitive count of the full surface area of water bodies on the planet. In 2013, Raymond and colleagues developed the first global map of their surface area and carbon emissions. They found that water bodies are emitting 2 billion tons of carbon as CO₂ each year. Their report, published in the journal *Nature* and one of Raymond's most cited research studies, prompted further inquiry into anthropogenic emissions and fluxes.

"It's mostly part of the natural process, not like fossil fuel emissions," says Raymond, professor of ecosystem ecology, whose undergraduate work focused on carbon dioxide emissions in the Hudson River. "But when you are trying to figure out how much anthropogenic emissions there are and fluxes in different regions, it becomes important to know, and it's a number that is big enough to be considered in global modeling of atmospheric CO₂."



It is not just how much carbon and other greenhouse gases are being emitted and stored by water bodies that have the attention of YSE researchers. It is also the age of dissolved carbon in water bodies.

PhD student Laura Logozzo has been taking samples from the Connecticut River to ascertain the age of dissolved organic carbon. For the past two years, she has taken samples from five different areas along its span to do what has not been done before: focus on the age of dissolved organic carbon in a river over time.

What she has found from her samples — and older ones stored in the lab dating back more than five years — has raised a possibly troubling issue that needs further inquiry: Dissolved organic carbon found in the river samples is significantly older than previous samples.

"This means that the amount of old carbon compared to fresh carbon entering the river is increasing," she says.

If a river has older dissolved organic carbon present, it means that the carbon once stored in terrestrial soils and forests has been entering the river and could be a new source of carbon dioxide being released into the atmosphere. While research has not yet determined the cause of the presence of older dissolved carbon in the river, it could be a result of droughts caused by climate change. The urbanization of watersheds and agricultural use could also cause the dredging up of older carbon soil pools that are then exposed and washed into rivers.

"And that's bad because you're basically losing whatever carbon is stored on land," explains Logozzo. "If you're not measuring the carbon that's actually leaving those soils into rivers, then you may be overestimating how good these ecosystems are at storing carbon."

Previous page: PhD student Jonathan Gewirtzman was in the Florida Everglades in the spring semester as part of a research team examining greenhouse gas emissions from mangrove trees and the ecosystem's blue carbon storage potential.

Top right: PhD student Laura Logozzo has been taking samples from water bodies in Connecticut to examine dissolved carbon and other measurements relating to water quality. Here she is performing maintenance on water quality probes in Bunnell Brook.

Bottom right: A photooxidation chamber and vacuum line in Professor Peter Raymond's lab that is used to convert dissolved organic carbon into carbon dioxide to measure carbon age.





Postdoctoral fellow Taylor Maavara collects samples from Colorado's Gunnison River (at left) and from a site downstream of Taylor Park Dam at the Colorado River headwaters to analyze how dams impact greenhouse gas emissions from water bodies.

NOT JUST ABOUT CARBON

To get a more complete account of emissions from water bodies, YSE researchers also are examining methane and nitrous oxide emissions. While it only persists in the atmosphere for a dozen or so years, methane traps heat far more effectively than carbon dioxide and accounts for 25% of atmospheric warming in the industrial era. Nitrous oxide molecules are roughly 300 times more effective in warming than carbon dioxide molecules and, unlike methane, can persist in the atmosphere for over a century.

Last spring, a study by a team of researchers led by postdoctoral associate Judith Rosentreter and co-authored by Raymond, found that aquatic ecosystems and wetlands contributed at least half of the total global methane emissions budget. The authors reviewed methane fluxes from 15 major natural, human-made, and human-impacted aquatic ecosystems and

wetlands — including inland, coastal, and oceanic systems. The combined emissions from these aquatic ecosystems are potentially a larger source of methane than direct anthropogenic methane sources, such as agriculture or fossil fuel combustion. The amount emitted from these aquatic ecosystems is also impacted by human activity and is important to track, the study notes.

Taylor Maavara, a YSE postdoctoral fellow, has been exploring a unique area of study: how dams, a key component of hydroelectric power, affect nitrous oxide and other greenhouse gas emissions. In the coming years, almost 90% of the Earth's rivers will have dams. And while they provide less carbon-intensive sources of energy at the point of generation, hydroelectric dams impact water body emissions in significant ways.

"There are potentially up to 70,000 medium-to-large reservoirs on Earth. And if

you're trying to extrapolate the amounts of emissions from just the 50 reservoirs that have been studied, there's just massive uncertainty," she says.

Her research has focused on, among other things, how much nitrous oxide is emitted from reservoirs, rivers, lakes, and estuaries — and it is high.

"Inland waters are emitting roughly the same amount of nitrous oxide as a country in Europe. That's a significant amount," Maavara says. "Another finding was that reservoirs were the most efficient inland water emitters. As we continue to dam, we're going to potentially increase the emission of nitrous oxide from inland water sources."

To mitigate this, she advocates for pulling back from the notion that dams must be permanent and suggests reconfiguring dam operation schedules.

"We really need a plan for the whole life

cycle of a dam. We have to get away from the idea that we are building a dam forever. Dams should have a timeline. And after a certain point, they should be decommissioned and deconstructed," she says.

THE PROMISE OF BLUE CARBON

While water bodies are sources of emissions, whether human induced or from natural cycling, they also store carbon at levels that show promise as a natural climate solution.

The term "blue carbon" was first coined in 2009 as a nod to the potential of these ecosystems that store carbon to help limit the global average temperature rise to well below 2 degrees Celsius — an atmospheric tipping point. Blue carbon ecosystems (BCEs), which include salt marshes, mangroves, and seagrasses, each sequester more carbon per hectare per year than tropical forests.

The degradation and clearing of coastal ecosystems cause emissions of between 0.15 and 1.02 billion tons of carbon dioxide into the atmosphere each year, according to the study "Estimating Global 'Blue Carbon' Emissions from Conversions and Degradation of Vegetated Coastal Ecosystems" published in *PLOS ONE*. These emissions are equivalent to 3%–19% of those from deforestation globally, the study notes.

Yet only about 1.5% of global BCEs are currently included in marine protection areas. Preserving, managing, and restoring these ecosystems globally, alongside seaweed farming, could reduce emissions by as much as 1.4 billion tons of CO₂ equivalent emissions annually by 2050, according to a 2019 High Level Panel for a Sustainable Ocean Economy report.

Quantifying the potential BCEs have for carbon storage and how to maximize it is the focus of several new field experiments being carried out by YSE researchers.

Raymond's lab will be using a new Swiss-built instrument the size of a small car to calculate timelines of blue carbon sequestration cycles from samples he hopes to gather with partners from water bodies all over the world. This will enable researchers to better understand the sequestration process and ways to enhance it, Raymond says.

INTO THE MANGROVES

With funding from NASA and the Yale Center for Natural Carbon Capture, Adams and Gewirtzman, the students from Raymond's lab doing fieldwork in Florida, are examining the effects of degradation from climate change and extreme weather events on the blue carbon storage abilities of the Everglades, as well as whether the damage

increases methane emissions.

Sea level rise, agriculture, hurricanes, changes in water flow, and regional development have contributed to degradation of the Everglades.

NASA will be leading aerial flights over the area to test for emissions in the atmosphere. YSE's team will be focusing on methane emissions from the trees and water bodies that could offset carbon uptake and storage in the ecosystem, Gewirtzman says.

The research will help quantify the potential of blue carbon ecosystems, helping to inform ecosystem conservation and management, climate modeling, and the carbon credit marketplace.

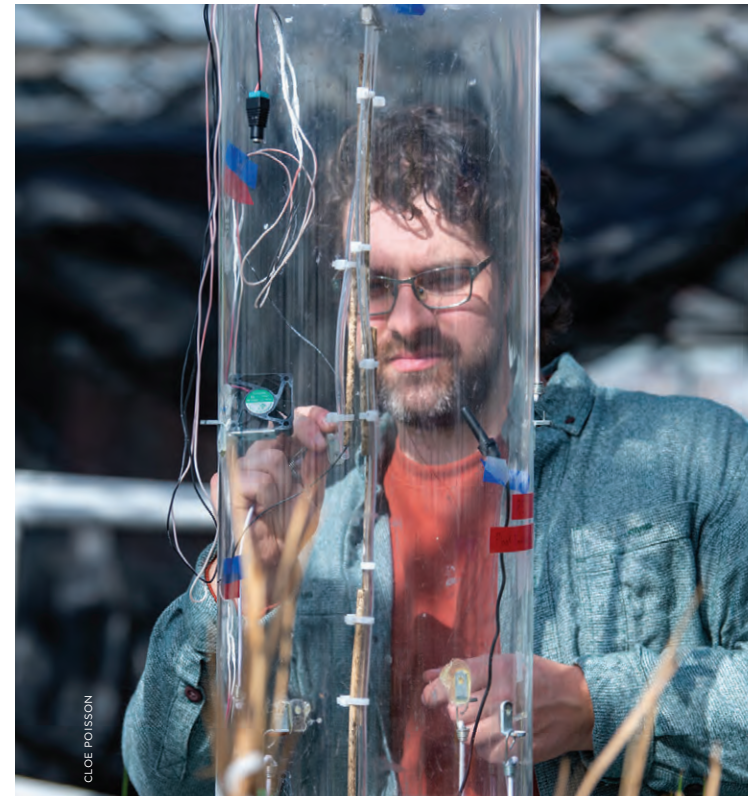
"We're trying to get a sense of what the vulnerability is of carbon stored in these systems to a changing climate," Gewirtzman says.

Mangroves are among the most carbon-rich forests in the tropics, but in the past 50 years, between 30%–50% of mangroves have been lost globally, according to the Blue Carbon Initiative.

"With the work we are doing, we'll be able to have a better assessment of precisely how influential mangroves are as a blue carbon sink," says Adams. "I think one of the most exciting findings would be if the restored sites and the undisturbed sites are doing significantly better than the disturbed sites. Then we could make a stronger case for restoration and protection of mangroves."

MIGRATING SALT MARSHES

Shimon Anisfeld, YSE senior lecturer and research scientist in water resources and environmental chemistry, has been tracking the impact of climate change on salt marshes, which store carbon in peat. Sea level rise has



From left to right:
 PhD student Jonathan Gewirtzman affixes a flux chamber connected to a portable greenhouse gas analyzer to a red mangrove tree in the Everglades to calculate the rate of greenhouse gas emissions.
 Frannie Adams '23 MESC examines red mangrove seedlings in the Everglades as part of her research into tree methane fluxes in disturbed and undisturbed blue carbon ecosystems.
 Ben Girgenti '22 MESC measures gas emissions with a chamber he constructed as part of research into whether adding minerals to wetlands could reduce methane gas emissions.
 Sea level rise is making marshes wetter but also allowing them to move upslope into coastal forests, as YSE researchers are discovering at the Barn Island Wildlife Management Area in Stonington, Connecticut.

been a main pressure on coastal salt marshes, which can lead to their collapse and the release of carbon.

“I fear that in 50 years, with accelerating sea level rise, a lot of our marshes will disappear,” Anisfeld says.

His studies show the need for planning for marsh migration to protect them so they can continue to store carbon and be a natural buffer against storms. This means less development in coastal areas, where homes often abut salt marshes.

“We need to plan around marsh migration corridors and leave room for them,” he says. “A managed retreat from the coast is compatible with allowing room for salt marshes.”

Liz Plascencia '22 MEM, who completed an independent study on blue carbon with Anisfeld, says the new research will help the public and policymakers understand the

importance of protecting marshes.

“This is not unproductive land. It’s an incredibly productive ecosystem with a plethora of co-benefits. I hope that we are able to share the blue carbon sequestration potential of salt marshes to help garner more attention from land use managers and policymakers,” Plascencia says.

NEW EXPERIMENTS AIMED AT REDUCING METHANE

Another promising area of research being explored at YSE is the reduction of biological methane emissions by adding minerals in wetland ecosystems that also store carbon.

To pursue reductions in emissions, Girgenti, from Raymond’s lab, created 72 mesocosms of mini wetlands in buckets using 1,200 pounds of marsh sediments from the Yale Nature Preserve to test whether adding minerals such

as iron would decrease methane emissions.

By adding iron to the soil, Girgenti explains, microorganisms will preferentially use it as their electron acceptor in their metabolism instead of organic compounds that result in the production of methane. This is because the iron reduction pathway gives microorganisms more energy.

So far, the addition of iron worked — in the lab buckets at least, says Girgenti, who regularly tested the air through an intricately designed closed chamber he constructed himself to obtain the methane readings. “It is a very quick response where the production of methane is just shut off,” he says.

The hope is to transfer that success to natural wetlands.

“If you’re building or using wetlands for natural carbon capture, you could shut off or decrease methane emissions, reducing

the amount of time it takes for wetlands to begin having new sequestration of carbon,” Girgenti says.

Girgenti also is studying ways to increase the natural weathering process to reduce emissions. To pursue this, he added basalt to some of his mini mesocosms. However, chemical weathering takes time, so it is too soon to tell if the addition of the basalt is working.

ENHANCING CARBON UPTAKE

In Vermont this spring, Jim Saiers, working with Raymond and Planavsky, is overseeing a team spreading crushed basalt to a pasture with a stream running through it to examine enhanced weathering in a watershed. Weathering happens when rainwater and snowmelt interact with rocks and soil and dissolve minerals, and carbon

dioxide is converted to bicarbonate, which sequesters the carbon dioxide and removes it from the atmosphere.

“Lowering greenhouse gas emissions is paramount, but we will also need to capture carbon dioxide from the atmosphere to achieve climate stabilization targets. Enhanced mineral weathering may be among the practical instruments of CO₂ removal,” says Saiers, who is Clifton R. Musser Professor of Hydrology.

This is one of the first times this type of enhanced natural weathering process will be tested at the watershed scale, he says.

The research team also is examining how CO₂ consumption rates change with time, how often to apply basalt, and which types of rocks work better than others.

“One of the things that we hope we can do with the Vermont watershed is to figure out techniques and approaches that are good

for quantifying carbon capture. And these techniques can be applied to other places, not just by us but by other scientists and managers,” Saiers says.

If it works and carbon capture is enhanced, it will be one tool to help mitigate climate change.

“It can be part of the solution, but it isn’t going to solve it,” says Saiers. “It’s one tool in the toolbox, but it can’t be a substitute for lowering emissions.”

All this YSE research will help get a firm handle on emissions and absorption of greenhouse gases by water bodies, how important this is for the global budgets, and how we might manage these systems to mitigate net emissions — information that could prove invaluable as the window to avoid the most severe impacts of climate change to people and ecosystems continues to shrink. ❖

COMMENCEMENT 2022

Students from the YSE Classes of 2020 and 2021 returned to campus May 14 for a special in-person commencement ceremony, and the Class of 2022 commencement was held May 23. The events included a celebration in Kroon Courtyard that featured food, photos, and festivities. View the ceremonies: environment.yale.edu/commencement



MATTHEW GARRETT



CATHERINE FIEHN

Congratulations to the Class of 2022! Many of the close to 200 graduates who make up this year's class — joined by nine canine companions — gathered behind Marsh Hall bright and early on April 5 for the 2022 class photo. A makeup photo was taken later for those who could not make it on the 5th and is posted on the YSE website at <https://yse.to/2022>. The photo also will hang on the wall of the Sage Hall staircase with photos of previous graduating classes.



Oak Thorne '53 with a yellow-headed blackbird.

CLASS NOTES

☀ Denotes a reunion class year. Reunion 2022 will be held October 7–9, 2022.

53 CLASS VOLUNTEERS
Stanley L. Goodrich,
slmygoodrich@gmail.com
Earl W. Raymond, ewraymond@yahoo.com

Dr. Oakleigh Thorne II writes: “At 93, I still go to work each day at Thorne Nature Experience (Thorne Ecological Institute), a nonprofit that I founded in 1954. We connect kids and youth to nature through classes and field trips. As a master bird bander, I teach a bird-banding class in the month of June each year to 12–15-year-olds. We band lots of red-winged blackbirds and hundreds of cliff swallows. Two of my former students are now in grad school at Yale, one in ornithology and one in environmental engineering!”

54 CLASS VOLUNTEERS
Richard A. Chase,
rchase@aol.com
Gordon Hall, gordonhall2@comcast.net

Richard Chase writes: “I’m still enjoying retirement in the North Carolina Piedmont after a challenging

40-year career with the U.S. Forest Service followed by 10 years in private consulting. Time with the USFS was equally divided among varied assignments on three national forests, the National Office Fire & Aviation staff, and in fire research developing methodology to incorporate benefit/cost considerations into fire protection program planning and budgeting locally and nationally. An early surprise in my career came in my second year, when I was asked if I might know how to carry out a timber reinventory and recalculate the annual allowable cut for the ranger district (a major fire four years earlier making a reduction from the current cut necessary). The expertise on how to go about doing that apparently not being available among more experienced foresters, the forest supervisor wondered if my master’s degree from Yale might have included that very technical subject, which, of course, it did in Professor Meyer’s ‘Forest Management’ class. The somewhat humorous side of this is that as we spent time in class wading through the detailed technical steps involved, the question of why — when the

probability that any of us would ever get to actually do it was about zero — was broached more than once! My response to the forest supervisor was a quick, confident ‘sure,’ and I got to spend the next several months getting to know the whole ranger district intimately on foot as I took many dozens of sample plots for the calculations involved in the sustained-yield formula.”

55 CLASS VOLUNTEER
Lawrence B. Sunderland,
lsunderlandor@gmail.com

Richard Bury writes: “Never thought I’d last this long! Still in good health, living in the beautiful southern Appalachians in Asheville, North Carolina. Active in environmental management of our retirement community of 700 persons within a forested hilly property of 50 acres. Rereading (for the third time) the five-volume series, ‘Early Days in the Forest Service,’ published by the Northern Region, USFS, Missoula, Montana, and Northern Rocky Mountains Retiree Association, Missoula.

Absolutely wonderful stories written by the guys working 1900–1950. Living conditions, life of their wives, boundary establishment, inventory, firefighting, horse- and mule-packing, rafting through wild waters, fire lookouts, grazing administration, etc. They were a truly tough bunch!”

Larry Sunderland writes: “For the past two years my wife and I have been living in someone’s idea of an arboretum, now a retirement community. Our cottage is feet away from a steep strip of Douglas fir forest separating us from the Willamette River flood plain. It was assumed I could name and label 30+ tree species. I knew three, the rest unfamiliar mostly from Asia, Europe, and Australia. My career: five years in Northern California (redwood lumber, cruising); 25 years in Washington, D.C., and Geneva, Switzerland (foreign trade tariffs, policy and disputes, a good part about forest products); the rest in New Hampshire managing my own forestland, teaching foreign marketing at Keene State, and volunteering with environmental organizations (forests, birds, lakes).”

56 CLASS VOLUNTEER
Patrick J. Duffy, pjduffy@shaw.ca

Patrick Duffy writes: “Chaired the Canadian Task Force to write the National Environmental Impact Assessment Policy and Procedure (1972) and co-authored the FAO EIA Guidelines for the Field Projects (2012), thus received the 2013 Outstanding Service Award from the International Association for Impact Assessment. I have also enjoyed mentoring forestry students at the University of British Columbia and IAIA entry workers for 20 years. Half of the 1,000 UBC students are women! Over my career I was fortunate to work in over 40 countries, half with U.N. agencies. Recently I made a five-year grant to UBC to aid co-op students with travel and per diem costs to remove a barrier to international travel. And I give to The Forest School, with happy memories being on the executive board of the student body in the mid-1950s.”

61 CLASS VOLUNTEERS
Karl Spalt, kjspalt@yahoo.com
R. Scott Wallinger,
scott@scottwallinger.com

Scott Wallinger writes: “I just finished, with Jamie Lewis of the Forest History Society, a presentation on the history of the Appalachian Society of American Foresters for its centennial meeting; for me, a look back after 65 years as an SAF member. This year I’m past chair of the Lowcountry Land

Trust, winding up seven years on its board. We’re celebrating 35 years of work with 150,000 acres protected in the South Carolina Lowcountry. At the Bishop Garden retirement community where I live, I chair its arboretum group. Our arboretum was just recertified by ArbNet, an international body based at the Morton Arboretum in Illinois.”

63 CLASS VOLUNTEER
James Boyle, forsol40@comcast.net

Bob Latham writes: “Still vertical but too tottering to do useful work. My wife and I have sold our ranch/tree farm in eastern Oregon and moved back to Corvallis. The CRC Press published my book, ‘Forensic Forestry,’ a few months ago. I’m not planning on royalties to sustain retirement, but it seemed like a useful endeavor. TGIF.”

Albert Stoll writes: “Thank you, Yale School of Forestry (1963 name!), for giving me 59 years of memories, huge environmental knowledge, and the social desire — the guts — to speak out on behalf of the earth’s precious environment. My memories arose out of Dr. Albert C. Worrell advocating for my desire to study the social impact humans have on the environment. Dr. Worrell, an open-minded forest policy and economics professor at the time, arranged for me to take classes from Yale’s Industrial Psychology Department — outside the regular curriculum — from a professor named Chris Argyris. This changed my life! I learned simple things like ego, social structures, culture, self-esteem at the naïve age of 23. Since then, I’ve done social research on human-caused forest fires for the PSW Forest and Range Experiment Station, taught forestry at a small California junior college, and, recently, successfully advocated to protect an abandoned golf course from losing its open-space value! I lost my own home October 9, 2017, to the same wildfire the golf course’s fire break diverted from thousands of other adjacent homes (not exaggerating) in the Wikiup-Larkfield, California, area. Dr. Argyris was absolutely the inspiration of my life, thanks to Dr. Worrell and the Yale School of the Environment’s open-minded, flexible student attitude. Sadly, my father passed when I was attending Yale; otherwise I would have never left the exciting Yale experience.”

64 STEWARDED BY THE OFFICE OF DEVELOPMENT AND ALUMNI SERVICES

Adolfo (Jun) Valenzuela Revilla Jr. writes: “I will be 83 in a few months, but my problem for six years now has been my weak heart due to ‘heart

failure condition with only 21% ejection fraction.’ My only remaining asset is my natural still-undyed hair. Anyway, I have put the solution to widespread poverty, the sustainable development system with the three integral components, in adequate detail so that our younger, healthier colleagues in all fields and disciplines can master the theory, concepts, and processes involved for its successful implementation. I am hoping that we can get the next president to implement the SD system. If so, I hope to witness the initial processes including the pilot projects — I believe that once the SD system implementation reaches its third or fourth year, then we will be on our way to success! And my dream, since 1987, of liberating our poor families from the shackles of widespread poverty will start to become a reality! Anyway, regardless of what happens, this will be my legacy to the Filipino people and humankind!”

65 CLASS VOLUNTEER
Guy L. Steucek,
guysteucek@comcast.net

John Blouch writes: “Reconnected with **Jun Revilla '64, '78 PhD**, cabin mate at Crossett in spring of '64. COVID-related wood pricing brought a 50% increase on offer for timber on the wood lot, but shifting management focus toward aesthetic value for development as houses appear on adjacent plots. No COVID or even common cold as a result of social distancing, masks, inoculation, and handwashing. Understand why the elderly, seen in ports of Southeast Asia during Vietnam, wore masks. As previously, mill closed just as pandemic hit. If it had to be, timing was fortunate. Heavy air schedule would have become a nightmare of delays and cancellations. Health great but 30-pound bag of bird seed more of a challenge than 100-pound bag of portland cement in Yale days’ summer job. ‘Sic transit gloria mundi.’”

71 CLASS VOLUNTEERS
Joseph L. Deschenes,
jdeschenes0605@gmail.com
Harold T. Nygren, tnygren@juno.com

Ron Wilson writes: “I am enjoying life as a semiretired forester working part time for a medium-sized plantation company with head office only one suburb away from where I live in Sydney. I ride an e-bike to work. The major fires of 2019–2020 had major impact on our company as around 30% of our softwood plantations were burnt. Fortunately, most were insured but a lot of extra work in sorting out replanting/rehabilitation of the burnt areas and investors. COVID has been a real challenge here. I am currently involved in

CLASS NOTES

policy with colleagues to attempt to get more plantations established in Australia, for many good reasons. Other than work, I am busy with family (five grandchildren), cycling, swimming, golf, and playing the sax in a jazz band.”

72 CLASS VOLUNTEERS
Matthew Rosen,
m.rosen@mchsi.com
Stephen R. Wells, steve@evergreenrowing.com

Phil Nemar writes: “We survived a second straight dry, smoky summer in a row without our place burning up. The 2020 Sheep Fire burned to within 0.6 mile of our house and the 2021 Dixie Fire was within seven miles. Evacuated both times. The two fires burned over 2,000 acres of client forests with light- to severe-intensity burns. With extreme fire behavior, it is impacting our thinking about how to grow Sierra Nevada forests sustainably in a world of climate change. It is a major new silvicultural challenge. Meanwhile, we’ve been to Carmel, Glacier National Park, the Oregon coast, Lassen Volcanic National Park, Pinecrest Lair of the Bear, and the Bay Area. Hoping for international travel this year.”

73 CLASS VOLUNTEERS
Clyde H. Cremer,
co120@postnet.com
Thomas J. Dunn, tdunn@flexpacknology.com

Roy Deitchman writes: “I ‘retired’ as class secretary after about 40 years. However, I discovered my retirement hobby is working. I work full time at the National Institutes of Health doing environmental health and industrial hygiene work. Also, I serve on the Montgomery County (Maryland) Air Quality and Climate Change Committee trying to significantly reduce GHGs in the next 15 years.”

74 CLASS VOLUNTEERS
R. Lautenschlager,
rlautenschlager@mts.ca
Norman A. Noyes, nyes16@cox.net

Len Lankford writes: “Still here (since 1975) in the spectacular Sangre de Cristo mountains of southern Colorado! A far cry from New Haven. Practicing private forestry, which evolved by necessity into a full circle integration of forestry, nursery, and sawmill. Check out greenleafforestry.com. I am looking for motivated successors (forestry, operations, business management, marketing, wood products, etc.) to run and enjoy this business, so contact me soon: len.at.greenleaf@gmail.com. Our Lankford family has three amazing kids doing unusual things – daughter Claire Harper in Denver (USFS Forest Legacy Program);

daughter Angela running treks and a lodge at 12,500 feet in Tibet (definitelynomadic.com) with her nomadic yak herder husband, Djarga; and son Tim in Westcliffe as my business advisor and doing technical real estate sales data analysis. Come visit us at Westcliffe, Colorado, to enjoy a small rural town and what our community-based forestry business is doing.”



Len Lankford '74 MF at one of the Greenleaf tree farms.

Liz Mikols writes: “Warm wishes from an unseasonably cold Silver City, New Mexico. I spent New Year’s in Yellowstone. The driving skills I honed in New England and upstate New York came in handy as I drove through true winter weather between southern New Mexico and Bozeman, Montana. Wonderful views of bison, elk, and trumpeter swans, to name a few. Geysers, fumaroles, and mud pots look fabulous in winter. Talked a bit of forest ecology with the guides, so my Yale degree is apparently still valid. Also discovered the wonders of Yaktrax. My total knee replacement surgery last August went well, so I’m back to teaching aerobics, tai chi, and zumba. Anyone is welcome to visit me to see Aldo Leopold’s old stomping grounds (a 30-minute drive away).”

75 CLASS VOLUNTEERS
Jennifer S. Belovsky,
belovsky.2@nd.edu
Hallie Metzger, hallie.metzger@rcn.com

Terry Chester writes: “It is a cold winter here in Sun Valley, Idaho. Had some nice FaceTime with some YSE classmates recently. Businesswise, I am happy to announce we’ve launched a new Adbiz website, adbiz.com! Thank you to everyone who made these past 25 years so rewarding! The ‘Mad Scientist of Marketing’ is alive and well!”

Hallie Metzger writes: “The pandemic continues to keep me mostly homebound as snow falls and wind howls off Lake Michigan. That gives me more time and incentive for YSE matters, such



A test plot of hybrid American chestnuts on the property of Hallie Metzger '75.

as our not-too-distant Class of '75 50th reunion. And I am so privileged to serve on the Alumni Association Board. We are tackling serious issues such as DEI and environmental justice. I’m hoping to visit New Haven and my family forest property this summer, especially the test plot of hybrid American chestnuts. I haven’t been out since last June!”

Doug Ryan writes: “My wife, Lillian, and I are retired and staying healthy and at home in Olympia, Washington. We consider ourselves lucky because we continue to get together regularly with both of our children and their families, including our three grandchildren, thanks to vaccinations and careful planning. During my stay-at-home time I have completed a long-running volunteer project editing a book drawing together research on biological responses to stream nutrients from 17 experimental forests. The book was published in 2021 by the U.S. Forest Service, and, if the topic interests you, you can download it free of charge. Look us up if you are in the Pacific Northwest!”

Helen Waldorf writes: “My spouse, dog, and I are living by the beach in Massachusetts. I have been doing a lot of volunteer work with American



Helen Waldorf '75 and her dog, Julie, at the beach.

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yale.edu/development

Society for Testing and Materials International. Committee E50 on Environmental Assessment, Management, and Corrective Action has formed a new subcommittee, E50.07 on Climate and Community. We would love some help on water; power; mapping; environmental, social, and governance standards to respond to underserved communities.

76 CLASS VOLUNTEERS
Thomas Barounis,
tbarounis@comcast.net
Thomas Marino, tjmmarino@gmail.com
Alan Poole, afp7@cornell.edu

Tom Barounis writes: “After a very full career in environmental protection (13 years with the state of Illinois in air pollution control and 31 years with the U.S. EPA in hazardous waste cleanup), I have finally retired. I have always felt, and said, that my years at YSE were personally transformative; all reflection confirms that sentiment now that I’ve hung up my Pulaski (figuratively speaking). I met my wife, **Diane Barounis '75**, in Helen Hadley Hall the third day I showed up in New Haven back in September 1974. We have been blessed with two great kids; four wonderful grandchildren; and

a retreat in Door County, Wisconsin, to which we get away often. Experiencing the four seasons in the Midwest is a rich experience, much as it is in New England. It has been heartening to see how the School has grown and evolved over the years. My best wishes to all of the students. They have chosen work of which they can be proud. And to the staff and professors who motivate and help guide them.”

Sally Hasted writes: “Alas! In June 2020, the hospital where I taught emotionally fragile teens about dinosaurs, minerals, literature, art, and every nature topic they adored decided it was time for me to retire. I’d taken time off to keep my husband (seven years older) safe from COVID; without warning, the program moved on without me. I’m now relishing ‘homesteading’ in Connecticut, refurbishing an ancestral house near my beloved Massachusetts wetlands and shoreline, and caring for Jack. It’s all good but not very contributive to environmental restoration. Still, in Wilton, our home is stuffed with nature specimens; books on every subject; all our writings; and a lifetime of shells, emotionalia, and travel clutter, which Jack calls ‘the collection.’ Someone wrote, ‘A celebrated collection is the legacy of one curious person.’ Well, that’s us! Hopefully I’ll get back into working for the environment but not quite yet. Jack’s having some mobility trouble, possibly from COVID, so we must bide our time and get him healthy first. Then give me a paper map, stubby pencil, notepad, and compass, and I’ll be off mapping and discovering wonderful things about woods, fields, and wetlands! But no digital paraphernalia; I’m strictly hands-on and immersion. Meanwhile I’ve written some fun stuff that I’d love to get published.”

Alan Poole writes: “Checking in from the highlands of Costa Rica, where I now spend January to March. Based at the OTS Las Cruces biostation here, focused on writing about birds. My latest project: resplendent quetzals, flagship species for cloud forest preservation and major tourist draw. Cornell will publish; book out in six months. Classmates and other YSE folks encouraged to visit; the station provides excellent accommodations. Beats winter at home in Massachusetts!”

Bob Seymour writes: “I retired in 2017 after 39 years at the University of Maine, the last 30 of which were spent teaching silviculture and other advanced courses and doing all kinds of silviculture research. Along with my wife, Jessica Leahy, who also serves on the UMaine faculty, I spend much of my time working our own woodlands (nearly 500 acres in east-central Maine); woodworking, smallmouth bass fishing, gardening, and grandparenting are also pleasures.

I write a monthly column on silviculture for the Maine Woodlands newsletter, and one of our tree farms, Wicopy Woods, was Maine’s outstanding tree farm in 2020. I was named a fellow of the Society of American Foresters in 2008 and won SAF’s Carl Schenck Award for national excellence in college forestry teaching in 2014 – two honors of which I am very proud. I also started a YouTube channel, mostly to capture numerous silviculture how-to videos I began recording a few years ago, that is surprisingly popular for a forestry site.”

77 CLASS VOLUNTEER
Tracy Kay, trkay53@msn.com

Dave Hall writes: “I miss the many wonderful friends I made in New Haven – two memorable years. Becky and I now split the year between Salt Lake City and the banks of the Henrys Fork of the Snake in Last Chance, Idaho, where I fish parts of most days. I continue to paint half the year, providing oil landscapes to galleries in the northern Rockies. I am very proud of the fact that my art donations over the years have raised more than \$100K for conservation nonprofits in the greater Yellowstone ecosystem. If you’re interested: DaveHallFineArt.com.”



Dave Hall '77 on Idaho’s Henrys Fork of the Snake River.

Andrew Melnykovych writes: “Still in Louisville. Will mark two years of retirement in April by marrying off our daughter. Continue to do consulting (paid and unpaid) for utility regulators in emerging economies. Managed to cram some travel into the Delta-Omicron gap and look forward to getting out more in 2022. Keeping busy with birding – teaching introductory classes through the local public library and the park system founded by **Dan Jones '06**.”



David Wentworth '78 and his wife, Betsy, in Florence, Italy.

78 CLASS VOLUNTEERS
 Susan Curnan, curnan@aya.yale.edu
 William C. Davis,
wmcDavis@aya.yale.edu
 Regina Rochefort, gibbons.rochefort@gmail.com

Susan P. Curnan writes: “After nearly 40 years on the faculty and as many years working in the field, I am very happy to announce the launch of a new MPP/MBA concentration in environmental justice at the Heller School for Social Policy and Management at Brandeis University. I am honored to be the inaugural chair of the program and teach the flagship course ‘Climate Change and Inequalities.’ My time at the Yale School of the Environment was critical in shaping my worldview and career trajectory as a nature lover, professor of the practice, and avid environmental steward. I look forward to hearing from and reaching out to Yale colleagues, alumni, and students as we grapple with the challenges and crises ahead. My current favorite bumper sticker: ‘There is no Planet B.’ Cheers from the North Shore of Massachusetts.”

David Wentworth writes: “After more than five decades, perhaps it’s time I submit my first class note. I’ve ended up a long way from the environmental training I got at Yale. I changed careers in my early 30s and have spent almost 40 years as a tax policy expert, the last 10 years giving tax policy advice to developing countries (mostly through the IMF). Living in metro Washington, happily married (for 37 years), two wonderful adult daughters (but no grandchildren yet), and trying to figure out what the last chapter of my life looks like. Balancing part-time work with part-time play is proving a challenge. We travel a lot but have never been to Alaska, so a cruise out of Juneau is now scheduled for August. And we’ll both celebrate our birthdays there!”

79 CLASS VOLUNTEERS
 John Carey, carey@aya.yale.edu
 Pat Leavenworth,
pepperpup1112@icloud.com

Richard Guldin writes: “Actively engaged in consulting work related to forest inventories and reforestation/afforestation policies at global, national, and subnational scales. Published an article last summer in *Frontiers in Forests and Global Change* on the state of the science outside the U.S. in small domain estimation research and applications in forestry. I’m also participating in the Forest Climate Working Group, especially interested in the forest science-forest policy interface. For fun, I’m building mission-style rocking chairs out of quarter-sawn white oak (four so far; willing to share my plans) and assorted other pieces from jewelry boxes to nightstands and chests of drawers.”

Dorie Karl writes: “I’m single, retired from my second career (volunteer management), and chasing two long-neglected passions. ‘Franklin’s Feathers’ is a narrative nonfiction picture book I’m writing about a peacock that strayed onto my 10 forested acres in Florida and led a zany, feral life with me and my 10 grandkids for almost 20 years. I plan to publish in 2022. I also delight in painting wildflowers and landscapes in watercolor. Several exotic plants on my property torment me, which **Ellie Lathrop ’80** can attest to after a day of eradication on one of her visits. Y’all are welcome to visit. My cabin’s in Hawthorne, 25 miles from the University of Florida in Gainesville, and has plenty of room for friends of yore.”



Ellie Lathrop-Deischel '80 and Dorie Karl '79 celebrated their 60th birthdays, June 11, 2021.

Bob Perschel writes: “I’m still the executive director for the New England Forestry Foundation, where we are fully focused on mitigating climate change through our region’s forests. Our analysis indicates that New England’s forests can offset 30% of

New England emissions over the next 30 years by establishing reserves, changing forestry practices to Exemplary Forestry standards, and building tall buildings with wood instead of concrete and steel. Professor Brad Gentry’s students at the School helped us pull a policy initiative together. We look forward to two upcoming reports from Highstead Foundation and the University of Maine to support our conclusions, and then we’ll attempt to direct climate funding toward financial incentives for landowners and builders to make the change.”

80 CLASS VOLUNTEERS
 Starling W. Childs,
eecostar@gmail.com
 Robert D. Comer, bobcomer@yahoo.com
 Sara Schreiner Kendall, sarabskendall@gmail.com

Natasha Atkins writes: “Since I graduated a semester late, I’ve been identifying with the Class of 1980. Although I continue to do freelance scientific editorial work, most of my energy is as a volunteer on the editorial board of the *Journal of Caribbean Ornithology*, a trilingual publication of the NGO BirdsCaribbean. We work to engage Caribbean ornithologists, many of whom are students or professionals in local conservation organizations and agencies. And at home, near Amazon’s new HQ2 site, I’m working to push for greater commitments to sustainability, tree canopy, bird-friendly architecture, and native landscaping in all the new development sites. Come visit! There’s always a bed for my fellow Stumpies.”

Bob Currie writes: “My wife, Polly (45 years), began portrait painting just as COVID began in March 2020. I’ve included her latest: Felicity, one of our 11 grandchildren. We headed to Florence on February 9 so Polly can take an intense, four-week course.”

Ken Olson writes: “Retired president and CEO of Friends of Acadia; observe politics, the natural scene, and other subjects from my new home in Jackson, New Hampshire. I’ve been writing across genres. For the book ‘Acadia National Park: A Centennial Celebration,’ Maine Writers and Publishers Alliance, the co-authors and I were finalists for the 2017 John N. Cole Award for Maine-themed nonfiction. In 2021, I was named a Maine Literary Awards finalist for the short collection ‘Common Cause and Other Poems.’ *Overstory*, a Yale Forest Forum publication, recently ran my poem ‘Hydro Logic: Why Slow Rivers Have S-Curves,’ dedicated to the memory of Brian J. Skinner, Yale professor of geology.”

Jane Sokolow writes: “Early 2022 finds me in not very different circumstances from early 2021. We are pretty much hunkered down primarily in Riverdale but managing to get up to our old farm in the Catskills on weekends. Both Ned and I are active on several boards – me on the Bronx Council for Environmental Quality and The Natural Areas Conservancy of NYC and Ned on The Cary Institute and a family trust. I am supposed to be on the planning committee for my 50th reunion from college, but it remains unclear if the event will happen in person. We managed a trip to Pennsylvania in May, where the family gathered to dedicate a bench and native plantings to my late brother, **Martin H. (‘Mike’) Sokolow Jr. ’72** (1948–2020), on the headwaters of the LeTort Springs Run, a piece of property he helped preserve for the Central Pennsylvania Conservancy. In July we got out to the family ranch in New Mexico before the Delta variant hit. Staying in touch takes on a whole new meaning in these times of limited meetups. I am grateful that the Class of 1980 nation remains close and in communication. I cherish these friendships.”

Steve Strauss writes: “I celebrated 50 years of running this year by donating a bench to the College Forest at Oregon State, with a focus on trail running with my longtime running buddy. Of course, it’s on the Beautiful Trail there. Yes, am still trail running at 66 and hope to make it a few years longer. Hope you are all well.”



Steve Strauss '80 (left) and friend Gary Barnes (right) at the dedication of their new bench on a favorite trail in the Oregon State University Research Forest.

81 CLASS VOLUNTEERS
 Fred Hadley, fhadley@sit-co.net
 Gail Reynolds, gail.kalison@reynolds@aya.yale.edu
 James R. Runyan, jrunyan@msn.com

Martha Davis writes: “Who knew retirement could be so busy! I am working on a combination

of projects in California including advocacy for water equity in the Central Valley, promoting landscape-scale watershed approaches for climate resilience including the use of water budgets, and finishing a remodel my home (thank goodness that is over). My family survived California’s Dixie Fire, although many friends and beloved ecosystems were not so lucky. For those who are still working on forestry issues, we urgently need much better climate-adaptive forest management protocols in the West! I deeply appreciated receiving the Bay Institute’s 2021 Carla Bard Bay Education Award in honor of my continued work on California’s water issues, including Mono Lake’s protection. I think often of my experience at F&ES (now YSE) and how much I learned from all of you. Thank you!”

Bruce Kernan writes: “Everything is fine here in Quito, Ecuador, during the winter and in South Worcester, New York, during the summer. From time to time, I’m getting interesting short-term consulting assignments with USAID. I translated my wife’s book ‘The Bridge of the Coyotes,’ an adventure novel for young adults 15+ about three Salvadoran children who escape the gangs and cross Mexico to the U.S. riding on the ‘Train of Death.’ It’s sold on Amazon. So is ‘Green Was My Forest,’ selected as one of the 10 best Spanish-language children’s books written in the 20th century. It’s a collection of stories about Indigenous children in the Ecuadorean Amazon.”

William Klassen writes: “I retired two years ago from the environmental consulting field, my last project being participation as a member of the Canadian Environmental Assessment Agency/Alberta Energy Regulator Review Panel for the proposed northern Alberta Teck Resources Frontier open-pit oil-sands mine (which in the end did not proceed). I continue to enjoy outdoor pursuits including a recent successful hunt for a wood bison, a species reintroduced into the Yukon wilds in the late 1980s while I was deputy minister of the then Department of Renewable Resources.”

Mark Plotkin writes: “Since the pandemic made fieldwork impossible, I have focused on communications. My most recent book, ‘The Amazon – What Everyone Needs to Know,’ was published by Oxford University Press last year. And I also launched a podcast, ‘Plants of the Gods: Hallucinogens, Healing, Culture, and Conservation,’ which has attracted an international following.”



Paula Daukas '82, Joth Davis '82, and Louise Richardson Davis '81 enjoy the snow in Montana.

82 CLASS VOLUNTEERS
 Paula Daukas,
pauladaukas3@gmail.com
 Gro Flatebo, gflatebo@gmail.com
 Barbara Hansen, bjhansen@fs.fed.us
 Kenneth Osborn, kennethdosborn@gmail.com
 Ross M. Povenmire, ross@povenmire.com

Gregory Baker writes: “**Tom Walicki** and I left Yale with \$30+ to our name, literally, and enjoyed the summer of 1982 at Great Mountain Forest with **Ned Childs '83** and **Starr Childs '80**. Tom and I still stay in touch regularly. We try to play golf a few times a year (both of us equally handicapped). Tom was a successful forest consultant for many years with **Mike Ferrucci '81**. My years since Yale are too varied to describe here. To all students from the Class of 1981, 1982, and 1983, know we are most grateful for the friends and fellowship 40 years ago. With sincerity, Gregory Baker (Fork Harbor, Maine) and Tom Walicki (Madison, Connecticut).”

Joth Davis writes: “Greetings from the Big Sky Country of Montana. Skiing the deep and steep with **Paula Daukas** and **Louise Richardson Davis '81**. We have had fun times reminiscing about everything!”

83 CLASS VOLUNTEERS
 Stephen Broker, ls.broker@cox.net
 Elizabeth W. Swain,
Elizabeth.swain@powereng.com

Stephen Broker writes: “The fieldwork for the five-year Connecticut Bird Atlas is completed as of spring 2022. I serve as regional coordinator for greater New Haven, which has 77 atlas blocks, two of which are my adopted blocks and encompass West Rock Ridge. Connecticut DEEP and the University of Connecticut are leading this effort, which will provide the latest information on breeding, wintering, and migratory birds in the state. Results will be online and will be invaluable for land managers and conservation efforts.”



David Loeks '83 and his dog, Walker, in the Yukon.

David Loeks writes: “Greetings from 50% of the Yukon YSE alumni! I just completed the sale of my timber-frame home manufacturing business. This was an innovative design and it used salvage timber from the infamous British Columbia mountain pine beetle infestation, but it was time to let go. I continue to consult in conservation, protected areas, and wildfire risk management. And I am as active as ever in wilderness travel, hunting, sailing, and skiing in the Yukon, accompanied by my faithful mutt, Walker.”

Denise Schlener writes: “Just as I was about to take the ‘semi’ out of retirement, I am now serving as interim executive director for the South Carolina Coastal Conservation League until the board selects a new executive director. Terrific advocacy organization. Almost forgot: The other news is I’m getting married in May to George Bren, my longtime partner.”

84 CLASS VOLUNTEERS
 Therese Feng,
Therese_feng@yahoo.com
 Roberta Jordan, jordanr5@comcast.net
 Timothy R. Williams, tim_williams@jsi.com

Shere Abbott writes: “In December, I retired as a professor at Syracuse University. In July 2022, I join the faculty at Johns Hopkins University in the Department of Environmental Health and Engineering, where I’ll build sustainability science and policy programs. JHU is renovating the former Newseum building on Pennsylvania Avenue for its D.C. campus. Ever since leaving the Obama White House a decade ago, I’ve missed the D.C. policy environment. With our New York nest emptying this spring, it’s time to return for a few seasons!”

Dusti Becker writes: “Ironic that the request featured a giraffe, as that is what I have been trying to save: giraffe nurseries on the Siria Plateau in Kenya. Privatization of land destroyed both

communal grazing and wildlife habitat, and now we are making the best of a bad situation: flagging fences, speaking to landowners, and trying to make a giraffe conservancy. Otherwise, still trying to stop the slaughter of Yellowstone National Park wolves, protecting birds in Ecuador, and getting older. Wishing everyone all the best and that we finally get over the COVID craziness.”

Mark Kern writes: “After many years in the environment field, mostly with the wetlands group of the EPA (33 years) in Boston, I have retired and left New England. My wife and I are building a house in Sarasota, Florida, and closing by spring 2022. We have family and friends in the area. Visitors are most welcome.”

Eva Mueller writes: “After working for the German government in Berlin as director general of forests, sustainability, and renewable resources of the Federal Ministry of Food and Agriculture for the past three years, I have recently retired and have just moved back to Italy. I am looking forward to spending more time with my partner and enjoying my country house at the foot of the Sabina mountains, but I will also spend time in



Eva Mueller '84 harvesting olives in Italy.



Class of 1984 grads Chris Stecko and April Grimm with their dog, Mica, in Half Moon Bay, California.

Rome working as a consultant for the U.N. Food and Agriculture Organization.”

Chris Stecko and **April Grimm** write: “We are living the Sierra foothills of Northern California and are both celebrating our retirements (Chris from telecom; April from the solar industry). We have two adventurous sons in their 30s who work in tech. We still miss our Jessie, born when we were at Yale, to this day. With travel becoming more possible, we plan to visit parts of the U.S. and Canada with our 16-foot trailer in tow. Maybe we’ll see some of you on the road. Thanks, **Therese Feng**, for all you have done all of these years to keep us connected!”

85 CLASS VOLUNTEERS
 Alexander Brash,
alexanderrbrash@gmail.com
 Jonathan W. Nute, nuteanne238@gmail.com
 Stephen Young, syoung@salemstate.edu

Alex Brash writes: “**JJ Earhart** relates that he is traveling – as always – and leaning into retirement as he winds down his Global Environmental Fund and soon heads back to California. Analía is building a wonderful home for them in a small oak woodlot in North Valley Napa, and his kids are great and his grandson the best.”

Larry King is living in and loving Detroit, trying to keep track of the kids, hanging with family in Minnesota but really spending most of his time in Motown at Baker’s Keyboard Lounge. Everyone else has been quiet (or introverted), though I saw **Brent Bailey** on a Zoom at an old friend’s retirement party, where he piped in – and looked good – from West Virginia. We bought a house in Vero Beach, Florida, just before COVID, and I am loving it: birding, fishing, golf, and the warmth! Learning all the palms. Have an agent on one book, working on another, and my two kids are now out of the nest and doing well. Hallelujah! JJ also noted, and I am sure we all concur that the recent passing of Frank Wadsworth (our TRI host), Tom Lovejoy, E.O. Wilson, and **Jeff Burley ’65 PhD** is a considerable loss this year. Good to hear though that he sees our ex-dean and honorable classmate, **John Gordon ’83**, and reports he is still stentoriously awesome in Portland.”

Chris Donnelly writes: “So, I retired. Good thing – I wouldn’t have been able to properly enjoy the pandemic otherwise. No, I am kidding. Since I retired from Connecticut DEEP, where I helped to build the urban forestry program for some 20-plus years, I have been enjoying doing many of the same things I did before I retired, only this time

not getting paid. Also kidding. I am still doing many of the same things that I liked before I retired but this time as a free agent, able to pick and choose those volunteer projects I like most but never seemed to have enough time for before. And I am getting rewarded enormously by being able to remain connected to many of the same great people as before and expanding my horizons toward some new directions and new friends to be made. Since retiring, I have been teaching some at UConn (urban forestry, what else?) while chasing the elusive bluefish in Long Island Sound in one of the kayaks from my very small fleet. Last, I bumped into **Jon Nute**, who informed me that I’m the only one of our class who is still at the same address as when I attended YSE – some things don’t change. It was good to see Jon at the New England Arborists Association meeting, just as it will be good to see other classmates. Let’s hope a favorable wind blows this virus out of our lives and that seeing each other in person becomes more possible very soon. All the best to the rest of the Class of ’85.”

Mark Judelson writes: “We launched my book, ‘Michael’s Legacy: Transcending Life and Death,’ the true story of Michael Bovill who died at the age of 23. His heart, lungs, liver, and kidneys were donated to five strangers. On October 21, 2021, the recipients of Michael’s heart and lungs; members of their families; Michael’s mother, father, and sisters; the heart surgeon who transplanted his heart; the physician who cared for the recipient of one of his kidneys; the transplant coordinator; and others met at LiveOnNY, the organ transplant agency that oversaw this miracle, to celebrate the book, Michael, and the 11th re-birthday party for the recipients. To learn more and to purchase a copy, visit michaels-legacy.com.”

Whitney Tilt writes: “Working on fisheries and climate issues as executive director of the AFFTA Fisheries Fund and enjoying the (relative) calm of Montana.”

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Ken Andrasko writes: “Sitting in Bethesda, Maryland, advising the Dutch Entrepreneurial Development Bank and a major private company on their tropical forest investments and Fiji’s minister of economy on how to cost out its climate adaptation portfolio. I wonder if we will ever rise to the governance challenges of climate change. Left World Bank in 2014; consulting since in the tropics. California girl spouse Julie has shared the fun since 1991 of seeing our two daughters evolve

to work on global health and international conflict. I’ve enjoyed seeing classmates **Mark Dillenbeck**, **Jim Chamberlain**, **Eric Carlson**, **Nels Johnson**, **Rob Ramey**, and **Laura Brown** regularly. And so the wheel spins. Best wishes to all!” kandrasko3@gmail.com.



A painting of Canyon de Chelly, Arizona, by Eric Carlson '86.

Eric Carlson writes: “**Ken Andrasko** and I toured Native American sites in Arizona and New Mexico this fall ’21. I’ve included a painting of Canyon de Chelly I completed to celebrate that trip.”

Daniel Hellerstein writes: “Semiretired in 2019, now three-fourths retired. Not doing much of anything due to COVID. Spend too much time coding web apps for fun (latest project: a photo-viewing program). Health is ... a bit troubled. Prostate/urological issues. But as they say, getting old sucks, but the alternative is worse.”

Nan Jenks-Jay writes: “During the 2021 reunion, I was fortunate to engage in a stimulating conversation with classmates **Elliot Gimble** and **Jim Pissot** ranging from climate change education to wildlife corridors. I was also honored with a Distinguished Alumna Award, which is more humbling than you can imagine. I’m grateful to the YSE Alumni Association Board; author Bill McKibben for his recommendation; and YSE Professor **Dorceta Taylor ’91 PhD**, preeminent scholar in environmental justice, for her kind introduction.”

87 CLASS VOLUNTEERS
 Christie Coon,
christie.coon@gmail.com
 Julie Dunlap, juliejdunlap@earthlink.net
 Annette S. Naegel, nettnaegel@gmail.com
 Melissa Paly, mpaly01@gmail.com
 Joshua L. Royte, jroyte@tnc.org

Christie Coon writes: “At almost age 80, I have retired as a wetland scientist – but every spring I still wade through a pond nearby to count wood

frog egg masses for a group that keeps tabs on them. Also keep active hiking with daughter at Bear Mountain, New York, once a year and walk dog (Beau) at least a mile a day. And every week I play tennis, paddle, and volunteer at a nearby botanical garden center. I loved my classes at the Yale School of Forestry (where my grandfather also went); I miss the intellectual and fun friendly conversations there with classmates!”

Yoel (“Joel”) Seton writes: “I am happy to have left my job as director of a ministry doing biblical study tours before COVID decimated the tourism industry here in Israel. These days I am a very involved father of our wonderful special needs sons. My wife and I are Messianic Jews, and God is faithful to carry us through every trial. I love being out in nature and am doing longer and harder mountain bike rides with the goal of competing in my first cross-country race this spring. (Any other YSE folks on Strava?) Jerusalem is my favorite city on Earth, but like most places, the government often wants to encourage the construction of new housing at the expense of wise planning. Sadly, development is now threatening some of my favorite close-to-home mountain biking areas, so I am mulling what to do about that. During our occasional trips to America, we focus on visiting elderly family, so we can’t visit friends and do wilderness trips as much as we’d like. But if any of you happen to be in Israel, we’d love to see you.”



Yoel Seton '87 and his family visited San Francisco last year.

88 CLASS VOLUNTEERS
 Jennifer H. Allen,
j.howland.allen@gmail.com
 Anne Buckelew, anne.buckelew@gmail.com
 Diane Stark, salserad@yahoo.com
 Philip Voorhees, philipvoorhees@gmail.com
 Holly Welles, hwelles@princeton.edu

Eric Jay Dolin writes: “My 15th book, ‘Rebels at Sea: Privateering in the American Revolution,’ will be published by Liveright (W.W. Norton)

CLASS NOTES

on May 31. Missing from most maritime histories of America's first war is the ragtag fleet of private vessels, from 20-foot whaleboats to 40-cannon men-of-war, that truly revealed the new nation's character — above all, its ambition and entrepreneurial ethos. 'Rebels at Sea' corrects that significant omission and contends that privateers, though often seen as profiteers at best and pirates at worst, were in fact critical to the Revolution's outcome. Abounding with tales of daring maneuvers and deadly encounters, 'Rebels at Sea' presents the American Revolution as we have rarely seen it before. To learn more about the book and to see where I will be speaking, please visit my website: ericjaydolin.com."

Tom Strumolo writes: "Love to my '88 classmates and all my friends from '87 and '89 and even to those of you who might have managed not to be my friend. Greetings to you youngsters, too, whom I met at GMF and whom I had the honor to meet and mentor at the School when I was doing some energy engineering at the new School of Management all-glass building. That beautiful building simply doesn't work because the architect forgot to enforce the laws of thermodynamics, which should be a prosecutable offense. Digression! I'm OK; thanks for asking — fought like hell to avoid COVID for two years but did catch it in January 2022 from my resident, otherwise adorable grandson. No symptoms. I kind of wish I understood this business of praying because the list of things we have to hold in our thoughts and our hearts is growing long. Every morning I think about the Earth, first, then all the species of plants and animals except humans, then the Indigenous people, then the people persecuted in continuous tribal warfare, then the victims of this vicious virus, then my family, then my friends, then, well, the rest. Then I go to work, making buildings more efficient and getting them off fossil fuels, focusing on the buildings that most need technological and infrastructural makeovers in the most disadvantaged communities, and lobbying all involved from DOE to urban mechanical contractors to work faster. Time is a-wasting; forget retirement; get back in the streets. Contact me anytime for a Zoom invitation. We should meet. **Karen**, email me!"

89 CLASS VOLUNTEERS
Elizabeth Carlson,
betsycarlson24@gmail.com
Cyril J. May, cyril.may@aya.yale.edu
Dave Tobias, dtobias@gmail.com

Stephen Kelleher writes: "Greetings from Accra, Ghana! I am in my seventh year here in West

Africa now managing the West Africa Biodiversity and Low Emissions Development program, the successor to the successful (if I do say so myself!) West Africa Biodiversity and Climate Change program. Work focuses on combating wildlife trafficking, decreasing forest and biodiversity loss and degradation, and all things GHG and land use — across West Africa so really easy (place 'LOL' here) but made easier by my fantastic team! You can check out some of our work at wabicc.org."

Cyril ("CJ") May writes: "I have pushed beyond doing my own enviromagic shows and begun writing to help others do so as well. My Green Magic column in *The Linking Ring* magazine helps magicians include environmental magic in their shows. An article I wrote for *Green Teacher* magazine (Fall 2021) helps educators think more 'magically' about teaching sustainability. If you or others have interest, please contact me." cyril.may@aya.yale.edu

Judith Moore writes: "This year I jumped ship from the London-based asset manager I helped found straight into the deep waters of another startup: ImpactARC. We're advising asset owners and managers on impact investing, what they signed onto when they glibly made their net-zero commitments, and what climate accountability is. It's a cold upstream swim. I miss the neotropics, leaf architecture, and keying out genera/species!"

90 CLASS VOLUNTEERS
Mary Ann K. Boyer,
maboyer61@gmail.com
Judy Olson Hicks, hicksjudyo@yahoo.com

Blair Leisure writes: "Blair is still married and still living in Golden, Colorado. My stats: three kids, one dog, one cat, one fish, one wetland company, endless fun! See you soon!"

Marco Lowenstein writes: "Living in lovely New Mexico. Staying safe. Charla and I had our two adult kids here for COVID. Such a blessing. A time to remember. Spent a lot of time this year tending to my 95-year-old mother in Massachusetts, who passed away recently. So a lot of family engagement. Buying and selling wood in the thick of the supply chain calamity is absolutely crazy-making, but somehow getting by. Onward."

91 CLASS VOLUNTEER
Peyton C. Griffin,
griffin0083@msn.com

Helmut Gieben writes: "My wife, Christine, and I moved to Bend, Oregon, in June 2021 and are enjoying the sunnier but colder winter weather

(compared to Portland, where we moved from). Lots of snowshoeing and cross-country skiing in the winter and bike riding and floats on the Deschutes River the rest of the year. I am still actively managing a number of properties in Portland, so I visit quite often. I miss you all and am really looking forward to catching up in person!"

92 CLASS VOLUNTEERS
Katherine Farhadian,
farhadianfamily@gmail.com
Leigh W. Shemitz, lshemitz@gmail.com

Lisa (Lumbao) Pagkalinawan writes: "After many years in the USAID world, I made the leap to the Asian Development Bank. I started as a consultant in early 2020 doing work on oceans and the environment more generally and was thrilled to be working with a really wonderful team and an amazing boss. So when a full-time position opened up, I applied and thankfully was selected. So now I'm doing environmental safeguard reviews and capacity building plus continuing to work on ADB's Healthy Ocean Action Plan. My daughter, Sophia, started in-person college in Savannah, Georgia, in September and is doing great. My son is in 11th grade, still stuck at home doing online classes in Manila, which he is not thrilled about. I hope he will finally be able to go back to school soon."

John Petersen writes: "I'm still teaching at Oberlin College. Started a new company, communityhub.cloud, that focuses on supporting the development of climate-resilient communities. Enjoying my family and playing music with my son, Luke, who's 14."



John Petersen '92 (right) and his research students after a day grinding biochar produced from experimental hazelnut prunings for a carbon sequestration and plant growth experiment.

Laurie Peterson writes: "Hi, Yale friends. Hoping you are all doing well and staying healthy these days. Currently I'm the science director for the fish program within the Washington Department of Fish and Wildlife, where I've focused on salmon

recovery science and fishery monitoring and management for the past 25 years. I'm married and have a 7-year-old daughter named Maya. We live in Olympia, Washington, with our two dogs, two kittens, and a bunny — keeping very busy! Life is good. Come by and say hi if you're in the area!"

93 CLASS VOLUNTEERS
Katharine E. Frohardt,
kefrohardt@gmail.com
Dean Gibson, dgibson@sandiegozoo.org
Molly Goodyear, bvidogs@cox.net
Daniel Hudnut, dhudnut@wagnerforest.com
John M. Norwood, john@tblventures.com
Jefferson W. Tone, jwitone@yahoo.com
Margaret D. Williams, arcticmargaret@gmail.com

Beth Conover and **Ken Snyder** write: "We are still happily in Denver in a now-empty nest. One son is in the Bay Area, engaged, and working at Lawrence Berkeley Lab on science communications; the other is at Oxford for a master's degree. I'm still running the CSU Salazar Center for North American Conservation (with **Lise Aangeenbrug '90** and **Gary Tabor '92** among our formal advisors): salazarcen.colostate.edu. We're in regular touch with lots of former F&ES/YSE and SOM friends. Please visit!"



Ken Snyder '93 ponders a petrified tree in the Bisti/De-Na-Zin Wilderness in northwest New Mexico.

Eugene Simonov writes: "I am legally obliged by the Russian Justice Ministry to use this disclaimer in any public communication: 'Agent 0078 (aka Agent Green). This message has been created and/or disseminated by a foreign mass media outlet functioning as a foreign agent.' I am a distinguished conservationist of Russia and the coordinator of the Rivers without Boundaries International Coalition. After 15+ happy years in China, my family and I were kicked out of China by a COVID-induced border shutdown to enjoy natural COVID in Moscow, then escaped Russia to

survive three vaccine shots in Haifa, Israel. Finally, on New Year's Eve 2022, we moved south to the country of platypuses, kangaroos, and cockatoos. For the next three+ years, I will be doing PhD research on prospects of global river conservation at UNSW-Canberra. No other changes in my work and habits have been reported by concerned intelligence services."

94 CLASS VOLUNTEERS
Jane Calvin, jcalvin@prospeed.net
Eliza J. Cleveland, liza@aya.yale.edu
Cynthia Henshaw, c.henshaw@comcast.net
Michael D. Moffat, dmoffat@post.harvard.edu
Diana K. Wheeler, dwheeler@aya.yale.edu
Jane Whitehill, janewhitehill@gmail.com

Steve Harrington writes: "I am taking an experimental faux-tirement to understand better what it will be like if I ever actually get the chance to retire. Meanwhile, I am also using this time to be very deliberate about what I do when I grow up. I am leaning heavily toward focusing on approaches and policies for dealing with climate change. So if you have a project that needs reasonably talented bodies and minds, I may be your person. I would love to work with people from YSE days because they are among the very best people I know."

Felton Jenkins writes: "I live in wonderful White Salmon, Washington, with wife Karen and dogs Wilma and Dean. Karen is the real forester in the family and also teaches cross-country skiing on Mt. Hood. I fished and explored the Kayapo territory in the Brazilian Amazon in August 2021. Besides managing investments, fishing, snowboarding, and looking for birds, my family in Georgia and I are trying to prevent the new EV truck company Rivian from industrializing 2,000 rural acres of forests, farms, and wetlands. It would be right next to our family farmland and cemetery. We need help! Please see No2Rivian.org and the Facebook



Felton Jenkins '94 on the Iriri River, Brazil, caught (and released) this pacu borracha.

group Our Communities Oppose Rivian Assembly Plant. My brother Alan helped start the NGO Morgan Land Sky Water Protection; they are very busy right now."

Bill Keeton writes: "Though the pandemic tried hard to trip me up, I managed to pull off (and just returned from) a year abroad on sabbatical. I spent the spring as a Fulbright Scholar in Vienna, Austria, where I was based at the Institute for Forest Ecology, University of Natural Resources and Life Sciences. The fall semester took me to the silviculture group at the University of Freiburg, Germany, as a guest professor. Working with more than 20 colleagues from across the continent and using data from 14 countries, my main project explored and proposed a new framework for ecological silviculture in Europe. The resulting paper is now in press with the journal *Ecological Applications*."



Bill Keeton '94 visited the Rothwald Old-Growth Forest in the Austrian Alps.

Nicola Robins writes: "I'm still in Cape Town, swimming in the kelp forest, being a mom, and working with Incite. Due to both the pandemic and the recent investor awakening to ESG issues, the corporate sustainability field has exploded. Fascinating developments. My latest focus is on how to apply complexity-fit tools in this space."

Eileen (Cates) Stone writes: "My family and I have lived near Saratoga Springs, New York, for about 20 years. We enjoy our small hobby farm with sheep and bees. I recently started a new job as senior project manager for Scout Clean Energy, a fast-growing renewable energy development company headquartered in Boulder, Colorado. At Scout, I am having fun leading repower efforts of older wind assets. I love seeing and catching up with classmates!"

CLASS NOTES

Jane Whitehill writes: “Freelance writing in drug development continues to be productive — always new diseases, new techniques, new treatments to learn about. And (about time!) people are including the physical and social environments that encourage health (or that encourage disease).”

95 CLASS VOLUNTEERS
 Marie Gunning, Mjgunning@aol.com
 Tetsuro Mori, tm@shiwasesoken.com
 Ciara O’Connell, cmoconnell@comcast.net

Dwight Barry writes: “I’m still a principal data scientist at Seattle Children’s Hospital.”



Class of 1995 alumni Kerry Fitzmaurice, Fiona Watt, and Cassie Johnston Hopkins at the Pure Grit pop-up restaurant in New York City.

Kerry Fitzmaurice writes: “I am thrilled to announce that I am opening a vegan barbecue craft-casual restaurant in Manhattan in May 2022 called Pure Grit BBQ. It has been a labor of love for three years. I believe that the best thing you can do for your health and the environment is eat a predominantly plant-based diet. Our menu is a great place to start. It features smoked alternative proteins and vegetables with traditional barbecue sides made vegan, like coleslaw, mac and cheese, and potato salad. Our signature side is a cornbread waffle that can be enjoyed savory or sweet. Oh, and everything is gluten-free. Follow the journey @puregritbbq.”

James Jiler writes: “Hola! I am currently residing in Valencia, Spain, working on a book about food security. Have plans to divide time in Costa Rica, where I’ll hopefully be developing a land institute with **Joaquin Leguia ’94**. Feel free to visit me in Spain. It’s quite lovely.”

Sarah (Cole) McDaniel writes: “With my son in college and divorce behind me, I’ve spent the pandemic settling into my new empty nest in



Sarah (Cole) McDaniel ’95 with her hiking partner, Cookie.

New Gloucester, Maine. I completed training as a mediator last year at Harvard’s Program on Negotiation so that I can expand my law practice to include mediating real estate disputes focusing on boundary issues, access easements, and families trying to manage inherited camps and lands in Maine. In addition, in my work representing land trusts and landowners in conservation transactions, 2021’s projects put me over the mark in helping to protect more than 130,000 acres in the past decade! Recently my conservation work has connected me with **Tom Duffus ’86** of The Conservation Fund. I’m always open to chatting with alumni who are considering a law degree or life in Maine: douglasmcdaniel.com.”

Ken Pruitt writes: “Hi, everyone! According to math, which is unreliable, I just turned 53. Changing the subject, Teresa and I are coming up fast on empty nester-hood. Emma is a junior at Worcester Polytechnic Institute (electrical and computer engineering), and Calvin is about to graduate from high school (he just earned his Eagle Scout rank — we’re super proud). Come September, the house is going to feel pretty empty. Our dog, Lucy, is going to be really depressed. I was ridiculously lucky and recently landed a great job as sustainability director for my hometown



Ken Pruitt ’95 plays pond hockey, sans skates.

of Winchester. I’m responsible for implementing the town’s climate action plan to reduce GHG emissions 80x50. It’s going to be, as we say around here, ‘wicked hahd,’ but I love the work. I wish I could say I was traveling the world giving forestry lectures in Hungary, Romania, Germany, and other exotic locations, but I’m letting **Bill Keeton ’94** take care of such tedium for me. Thanks again, Bill. With the scourge of COVID I haven’t seen any of you in person for what feels like seven years. Please, please let this pass. Warm regards from Winchester!”

96 CLASS VOLUNTEERS
 Kristen Phelps, phelps_kristen@yahoo.com
 Kathryn Pipkin, kpipkin9999@gmail.com
 Julie Rothrock, jrothrock@maine.rr.com
 Theodore R. Schwartz, ted.schwartz@apterratch.com
 Maria C. von der Pahlen, mcpahlen@gmail.com

Andi Eicher writes: “Hi, friends! My wife, Dr. Sheba, and I have been serving with the Asha Kiran Society (AshaKiranSociety.org) in the southern tip of the state of Odisha in eastern India for the past two years now. Sheba does clinical work in the Asha Kiran Hospital and looks after our community health work, focusing on practical palliative care for the villages that surround us as well as primary healthcare for the Bonda tribal group 50 kilometers away from our home. I support our agroforestry farmer livelihood program and community education work, which helps children from mainly unschooled families get into primary school using their own tribal languages. We have survived COVID-19 (yay!) and have our two amazing kids, Asha and Enoch, currently studying at Taylor University in the U.S. Midwest. Will they end up in New Haven some day? For those who are swinging by India, our doors are always open (and we are building a beautiful little house, too)! There is some decent birding to be had here. You can WhatsApp us at +91 9321112065 or email.” andisheba@yahoo.co.in

David Ganz writes: “I am still in Bangkok raising two amazing girls, Jeetah (age 6) and Seyah (age 7). Amazed at how resilient these kids have been with online learning and COVID-19 restrictions. The realities of living in Asia are a very stark contrast to what I am seeing in the U.S. Everyone is very cooperative and respectful of the government protocols here. Kids are adapting to the new world, especially whatever is due to come next. For my professional update, I continue to lead RECOFTC, an international organization serving the hundreds and thousands of community forest user groups,

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Indigenous peoples, and local communities across Asia and the Pacific. With climate action concerns becoming more urgent, scaling up our work is imperative. Ideally, RECOFTC will continue to grow and provide even more services to Asia and the Pacific, especially IPLCs and marginalized peoples. For addressing these challenges, I hope to hire some talented young people from Yale in the years to come. If interested, please do not hesitate to contact me or visit the website at recoftc.org.” David.Ganz@recoftc.org



David Ganz ’96 (center) presenting social forestry trends at the ASEAN-Swiss Partnership on Social Forestry and Climate Change in Jakarta.

97 CLASS VOLUNTEERS
 Jeffrey N. Adams, Jeffrey.adams@icf.com
 Paul Calzada, pcalzada@clf.org
 Praveen G. Khilnani, praveengrk@yahoo.com
 Mary L. Tyrrell, mlbtyrrell@gmail.com

Martin Medina writes: “I’ve been busy consulting for the world’s largest plastic waste recycling project in Indonesia; finishing a report on marine debris in Latin America for UNEP; writing a

paper published in a U.N. Human Development Report; advising Kampala, Uganda, on improving its waste management system with a circular economy approach; and UNDP on working to reduce waste in the textile industry in Myanmar. Interesting fact: I’m trying to replicate in Kampala and Lake Victoria a central aspect of how the Aztecs managed their solid wastes.”

Jose Juan Terrasa-Soler writes: “Our firm (Marvel Architects & Landscape Architects) just completed the comprehensive redesign of El Portal, the visitor center at El Yunque National Forest, in Rio Grande, Puerto Rico. El Yunque is the only tropical rainforest in the U.S. national forest system. El Portal opened to the public in January 2022 and includes the only accessible trail in the entire forest. Come visit Puerto Rico and take a look! You will all fall in love with El Yunque!”



Jose Juan Terrasa-Soler ’97 helped redesign El Portal Visitor Center at El Yunque National Forest in Puerto Rico.

99 CLASS VOLUNTEERS
 Kirsten P. Adams, kirstenandjeff@hotmail.com
 Jocelyn Forbush, jforbush@ttor.org
 Ripley R. Heintz, ripleyheintz@gmail.com
 Christiana Jones, christiana@jonesfamilyfarms.com
 Jennifer Garrison Ross, jennifergarrisonross@yahoo.com

Julie (Herbst) Bain writes: “I am still working as a district ranger for the Forest Service in Nebraska’s Sandhills, recently listed in *Conservation Science and Practice* as one of the top seven largest and most intact grasslands on Earth. My husband and I purchased a place in Wallace, Nebraska, where we will retire someday with dogs, bees, horses, and cattle in tow. I just made 25 years of government service, just about half my life! I’m working on a quilt titled *Unloved Insects of Nebraska*, starting with the tick. **Avery Anderson ’08**, **Katherine Cooper**, and **Laura Falk McCarthy ’87** are among my closest friends. I hope everyone is well.”



A quilt made by Julie (Herbst) Bain ’99, titled “Unloved Insects of Nebraska.”

Ann Brower writes: “I am the chirpy antichrist of the South Island high country of New Zealand. Having discovered that the government land reforms were selling land at negative prices that later sold for 992 times the government selling price, on average, the farmers call me a socialist infection, and journos call me the chirpy antichrist. My students call me professor of enviro science at University of Canterbury in Christchurch. And yes, there is a bill achingly close to passing through Parliament to finally, at very long last, end the land reforms.”

Maria Ivanova writes: “Global environmental governance became my passion during my time as an MEM student (joint with international relations) and turned into an academic career after receiving a PhD in 2006. I joined UMass

CLASS NOTES

Boston in 2010 to create a new PhD program on global governance and human security (global.umb.edu). In 2020, having reconnected with a group of amazing YSE women (all alums of the PhD program), **Julie Velasquez Runk '05** (now professor at the University of Georgia) and I organized the classmates career panel. **Marina Campos '06**, **Christiane Ehringhaus '05**, **Eva Garen '05**, **Keely Maxwell '04**, and **Helen Poulos '07** discussed their career trajectories and inspired graduate students in Georgia and Massachusetts! Also happy to announce that my book, 'The Untold Story of the World's Leading Environmental Institution: UNEP at Fifty,' was published by MIT Press in 2021. Now off to the U.N. Environment Assembly and UNEP@50 commemoration in Nairobi! And I highly recommend 'Yale Needs Women' by Anne Perkins, a fantastic book about Yale that was a dissertation at UMass Boston a few years ago!"

Concho Minick writes: "Hi! I am currently the CEO and partner in ULTERRE, which is a residential and commercial real estate brokerage in Dallas/Fort Worth. We are doing our best to manage the flow of people to Texas. Please come see us. Margaritas on me and Dawn. P.S.: Our boys are off to college, so it's just us and the girls now, Janie and Georgia."

00 CLASS VOLUNTEERS
Maureen O. Cunningham,
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Sarah J. Morath, sarahmorath@gmail.com
Erika Schaub, easffe@hotmail.com
Zikun Yu, info@ayuglobal.com

Sylvia (Stone) Busby writes: "My family and I enjoyed several bright spots in 2021, including short trips from our home in coastal San Diego to Anza Borrego Desert, Catalina Island, and San Francisco. In addition, our summer road trip to New Mexico included a visit with **April Reese** in Santa Fe. I am still working with The Nature Conservancy."

Maureen Cunningham writes: "I started a new job in late 2020 and am now serving as chief strategy officer and director of water strategy at the Environmental Policy Innovation Center, working on lead in drinking water and other water equity issues. EPIC is based in D.C. — though I work remotely from outside of Albany, New York, where I live with my husband and two boys. I also serve as an elected councilmember of my town and just won reelection to another four-year term. I was able to see **Laura Dunleavy Nelms**, **Donna An '01**, and **Navis Bermudez** a few months ago while visiting D.C. In 2020, several of us also held an impromptu reunion over Zoom."

Ali (Abuyuan) Monge writes: "Hello! I am happy to report that my family and I have stayed healthy and safe since March 2020, and I hope that everyone reading this is in good health as well. I continue to serve as vice president of Women for American Values and Ethics. Our organization is going strong, and there is still much work to be done despite our victories in November 2020. I also serve on three other non-profit boards, including as a trustee for St. Margaret's Episcopal School in California. My husband, Lindsay, and I will be celebrating our 15th wedding anniversary in July 2022, and we can't believe that our first son, Lucas (14), will be in upper school next year. Our second son, Jackson (12), started his middle school career last year. We are also parents to our lovely dogs Sage and Auggie."

Harry White writes: "I've been working on large-block preservation projects in northern New England, most recently saving 10,000 acres in the High Peaks and Mahoosuc regions of western Maine from more clear-cuts and other forestry crimes against nature. I also recently served on the Science and Technology Working Group of the Connecticut Governor's Council on Climate Change, where we went up against science-denying forestry interests, including YSE faculty, and lost. I also serve on the state Senate's Wildlife Management Advisory Group, where we are trying to prevent the killing of bears and apex predators. I am hopefully retiring soon after being a part of the permanent protection of about 45,000 acres in New England and am looking forward to focusing on my ski patrol work and spending more time dotting on the 600+ dwarf conifers I have in container and bonsai cultivation here on the farm in northwest Connecticut. Blessings to all."

01 CLASS VOLUNTEERS
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Mary E. Ford, maryelizabethford@gmail.com
Jennifer Grimm, jennywgrimm@gmail.com

Leigh Cash writes: "James and I still work for LANL and live and work in Tennessee so we can be closer to our families. We and our three dogs (Lola, Rudy, and Levi) are over the moon to now live in the Great Smoky Mountains and are looking forward to some amazing day hikes. James continues to love to fly, and I spend my time enjoying the three R's — reading (math), rowing (contemplating math), and rithmeticing (doing math). I live a faux well-traveled life through connections to many of you — including **Lisbet Kugler**, who is always coming from or going to someplace amazing!"

Dave Ellum writes: "I've transitioned into a full-time dean's role at Warren Wilson College, overseeing all land and sustainability programming. I still get into the woods working with students on our agroforestry operations, especially medicinal plant propagation. Townes is in his second year at UNC Chapel Hill, is the fiddler for the UNC Bluegrass Band, and has still not made it to dinner at the home of **Alex Finkral '97** and **Elizabeth Kalies '04**. He is threatening to head up to New Haven for graduate school. Seija is a freshman in high school and focused on her grades, volleyball, and, well, teenage stuff. Mona's company, Ellum Engineering, is doing well and entering a lengthy contract period with several regional municipalities. I'd love to put together a group tour of our land operations this spring or summer for any alums who are in the region. Give me a shout if interested."

Aya Hirata Kimura writes: "I am back in Honolulu from a one-year sabbatical at Kyoto University. I have been researching the connections between agrobiodiversity and foodways as well as continuing my work on citizen science. Because the foodway I am focusing on is fermentation, I have been eating and making lots of pickles ('tsukemono'). I hope to turn the project into a book soon!"

Quint Newcomer writes: "Grateful for the opportunity to contribute a chapter on Monteverde, Costa Rica, in Professor Florencia Montagnini's forthcoming book, 'Biodiversity Islands.' After leaving my full-time position as director of UGA's campus in Costa Rica, I've helped my wife, Lori, and her partners (including **Joe Smith '96**) run Architectural Collaborative. As director of sustainability, I get to help with things like setting up an ESG 401(k) plan and pursuing B Corp certification. We still love living in Athens, Georgia. My daughter, Ellery, has applied to grad school at College of Charleston, and my 10-year-old son, Rhys, is shredding the electric guitar. Disc golf has replaced ultimate, although I'm still aiming for one more great grandmasters division trip to nationals. Our Australian shepherds, Peyton and Ozzie, enjoy the disc golf, too!"

02 CLASS VOLUNTEERS
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Derik R. Frederiksen, derik.frederiksen@mac.com

Roberto Frau writes: "In the past year, closed international borders nudged me to live in Rio de Janeiro during the worst part of the pandemic in



This Yale F&ES centennial tote bag goes everywhere with Roberto Frau '02, including the beach in Rio de Janeiro.

Brazil, and I managed not to get sick only to catch the Delta variant on my way back to Puerto Rico, where I'm now permanently based. I also became a senior social development specialist consultant for Latin America and the Caribbean at the World Bank Group's IFC. Most importantly, I married Emeric, my wonderful French-Brazilian partner of 10 years, in a sexy but protected COVID wedding."

Rachel (Roth) Novick writes: "I left Notre Dame this past summer and joined the Morton Arboretum as their first director of sustainability. The arboretum is currently celebrating its 100th anniversary and is stunning in all seasons. Be in touch if you would like a tour!"



Rachel (Roth) Novick '02 is the new director of sustainability at Morton Arboretum.

Becky Tavani writes: "I'm still in Rome, Italy, working for the Forest Resources Assessment team at FAO. My two girls (8 and 10) keep me on my toes, particularly with my Italian. Cannot believe it's been 20 years since I graduated from YSE! I feel so grateful to have had such a formative academic experience (particularly Professors Siccama, Ashton, and Maathei) and such a rich

social experience (TGIF). Immensely fortunate to have met such amazing friends there with whom I'm still very close (so close my husband deems them the 'comitato'): **Roberto Frau**, **Colleen Ryan**, **Sarah Canham**, **Carrie Magee**, and **Rachel Fertik**. Our virtual happy hours have been a lifeline over these past few years. I had the good fortune to see most of them in person in 2021. Always happy to have visitors look me up if they pass through!"

03 CLASS VOLUNTEERS
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Benjamin Hodgdon,
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John F. Homan, john.homan@bofa.com
Peter Land, peter.c.land@gmail.com

Steve Dettman writes: "My wife and I just resettled in Singapore, and then we are on to Bali for a new job with Lestari Capital. I will be heading up the forest carbon project team working across Southeast Asia. Please look me up if you are traveling or working in the region." steve.dettman@aya.yale.edu

Carlos A. Linares writes: "Fully retired, my wife and I moved to Asheville, North Carolina, two years ago. We bought a house in Biltmore Lake, a community with a beautiful lake. I joined the Lake Committee and my wife the Landscape Committee. We are quite busy with stream remediation projects to reduce sediment flows to the lake. Having a blast but still getting used to being a Southerner."



Carlos Linares '03 and his wife, Peggy, on Lake Fontana, North Carolina.

04 CLASS VOLUNTEERS
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Cherelle A. Blazer, cherelle.blazer@aya.yale.edu
Hahn Chou, Hahn.chou@gmail.com
Laura Wooley, le.wooley@gmail.com

Valerie Craig writes: "After 10 years at NatGeo, I made a big change and am now heading up conservation at the American Forest Foundation — I finally found the trees! I work with amazing people, including a few fellow alums. **Marco Buttazzoni** and I are still in D.C., and our kids are headed to high school and middle school next year — at this point we'll be happy just to have it be in person."

05 CLASS VOLUNTEERS
David Cherney,
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Dora Cudjoe, dcudjoe@worldbank.org
Virginia Lacy, virg.lacy@gmail.com

Po-Yi Hung writes: "I was appointed a 2021–2022 Luce East Asia Fellow at the National Humanities Center and will be in the Durham/Chapel Hill area of North Carolina until the end of May 2022."

06 CLASS VOLUNTEERS
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Gonzalo Griebenow,
gonzalo.griebenow@aya.yale.edu
Jill Savery, jillsavery@yahoo.com

Christina (Zarrella) Milloy writes: "In September 2021, the U.S. Fish and Wildlife Service's Workforce Culture Transformation Team — which I have served on since May 2020 and was recently appointed chair of — received the Secretary of the Interior's Diversity Award in recognition of 'outstanding leadership in effecting change toward increased diversity within the U.S. Fish and Wildlife Service.' It was an extra special honor to receive this award from Deb Haaland, our very first Native American DOI secretary!"

Alison Rau writes: "I am now the office legal director for the environmental conservation branch of the Connecticut Department of Energy and Environmental Protection. I advise on matters ranging from bears to legislation, forestry enforcement actions to state park events, and everything in between."



A red-tailed hawk dropped by the Hartford office of Alison Rau '06.

Jeff Sigler writes: “After graduating in 2006, I did air-quality research in New Hampshire and then spent nearly a decade as a professor of practice in Earth sciences at Tulane University in New Orleans. Recently, my wife (Veronica) and I decided to return to Connecticut to be closer to family. We are living in Hartford with our son, Kellen (10), along with (to my knowledge) five cats, one dog, and two rabbits. I am teaching environmental science, chemistry, and climatology at Watkinson School.”

07 CLASS VOLUNTEERS
Terry T. Baker, terbak20@gmail.com
Sara E. Smiley Smith, sara.smileysmith@yale.edu

Heather Arrowood writes: “I’ve been based in the lake region of Gabon the last 13 years — now with my husband and our son, Afane — where we run a local biodiversity conservation NGO (OELO) and an ecotourism site (Tsam Tsam). Anyone coming to Gabon is most welcome at our house on the Ogooué River or at Tsam Tsam on Lake Oguemoué!”

Derrick Dease writes: “Happy New Year! I finally remembered to submit an update. Not a whole lot to tell ... still living in Denver and doing environmental compliance work for a cement and aggregate manufacturing company. I’m definitely eager to link up with some YSEers, so if you’re around, reach out!”

Charlie Liu writes: “Married with two kids in Cambridge, Massachusetts, these days — say hi if in town. Hobbies now involve kids top roping, kids sledding, kids ... — you get the idea. Also doing a local backyard taiji group here: freshpondtaiji.com.”

Brandon (Berkeley) Middaugh writes: “I am now living in Seattle and managing Microsoft’s Climate Innovation Fund of sustainable investments in decarbonization startups and projects. My

husband, Mark, and I recently welcomed our second baby boy and are enjoying life as a family of four. In the past year we enjoyed camping and visits with fellow Yale friends such as **Claire Gagne** and **Anton Chiono '08**. I’m currently reading ‘The Big Burn,’ which I recommend to all fellow alums.”

Tamara Muruetagoiena writes: “For the last two years I have been working as executive director of our beloved Great Mountain Forest and had the privilege to meet the incoming YSE students. I have also expanded my human rights work, and after many years of encouragement from my YSE friends, I have started a process in Spain to have my father recognized as a victim of a human rights violation. I am also a proud mom of my 5-year-old son, Luke.”

Elizabeth Pickett writes: “This year will mark 15 years at Hawaii Wildfire Management Organization for me. Over that time, we have become a hub of all things wildfire in our Hawaii-Pacific region. Since fires impact forests, streams, nearshore waters, and communities, addressing fire issues requires diverse partnerships and lots of time with people in many sectors and geographies. I continue to love facilitating collaborative projects that protect both people and place, made better only by the fun and capable team we have. On the home front, my son is 6 and loves hiking; surfing; watching insects and reptiles; and playing with our chickens, cats, dog, and fish. Our bananas and breadfruit are really producing a lot these days — come visit and have some with us!”

08 CLASS VOLUNTEERS
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Terry M. Unger, terry.unger@gmail.com
Jason A. Weiner, jweiner.ca@gmail.com
Kelsey Kidd Wharton, kelseyk.wharton@gmail.com

Natalie Ceperley writes: “I now live in a social-environmental cooperative in a former chocolate warehouse in Bern, Switzerland, called Warmbächli (warmbaechli.ch). Please check it out and get in touch if you live in or are building a similar type of cooperative! We have guest rooms, and it would be great to host YSEers!”

Chris Clement writes: “I recently joined Encore Renewable Energy as CFO/CIO and am planning on moving back to Vermont this summer. Would love to connect or reconnect with folks in the

Burlington area or elsewhere in New England. Excited to be heading back north after over six years in North Carolina. Our family grew this year to four (plus our goldendoodle, Honey Bear) when Oliver (‘Ollie’) Forest Clement came into the world in March 2021. Based on the roots of his name, he is destined to be an elf warrior or a tree planter, both of which sound pretty cool to us.”

Andrew Mackie writes: “After 11 years in Colorado running the Central Colorado Conservancy, I left this position and returned to New England as the executive director of the Scarborough Land Trust in Maine. I also founded a new organization, Amphibian and Reptile Trust International (amphibianreptile.org), in March 2020, weeks before the pandemic closed most everything down.”

Yuliya Schmidt writes: “I am an energy advisor to a commissioner at the California Public Utilities Commission, where I spend most of my time working on electric vehicles, planning for increases in renewable energy, and handling other electric grid issues. I live in Alameda, an island near San Francisco, and am pursuing a bevy of new COVID hobbies along with old interests: rock climbing, body boarding, rollerblading, and skiing. My partner and I are currently combating the quirks and malfunctions of a 100-year-old house under the watchful eyes of our cat.”

09 CLASS VOLUNTEERS
Jude Abel, judewu19@gmail.com
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Rajesh Koirala, rajesh.koirala@aya.yale.edu
Neelesh Shrestha, neesh.shrestha@gmail.com
Simon Tudiver, tudiver@gmail.com
Jack Yeh, jack.yeh@hey.com

Jude (Wu) Abel writes: “After 10 great years in nature conservation, I’m now fixated on developing innovative finance for global reforestation, particularly by tapping into carbon markets. Excited to join forces with pioneering alums in this space!”

Ke Cao writes: “In early 2022, I gratefully received in Canada via mail an old-style holiday greeting card with lovely family pictures and generous words sent from Kenya by my dear classmate and good friend **Murefu Barasa**. I was deeply touched and hope you all stay healthy, strong, and hopeful during the COVID pandemic and beyond.”

John Paul Jewell writes: “I live in San Francisco with my husband, Gary, and our rescue pit bull, Brujo. I’ve been working for ENGIE helping decarbonize the public sector for the last five years. I got married in October and had the

joy of celebrating in true San Francisco style — including a wedding wig-adorned run through Golden Gate Park — with fellow alumni **Audrey Davenport**, **Cat Manzo '10**, **Benson Gabler**, and **Julie Witherspoon '08**. Give a shout if you’re in the Bay Area and want to reconnect!”

10 CLASS VOLUNTEERS
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Alexandra N. Whitney, whitney.alexandra@gmail.com

Nasser Brahim writes: “Fun times behind me and ahead! Attended **Eliot Logan-Hines**’s amazing llama Chawar wedding alongside **Ben Blom**, **Ian Cummins**, and **Nick Olson '16** (aka Paul Rudd). Daughter number two is on the way, due on St. Paddy’s Day (so was I). Living with the in-laws while our house is under construction (I love them). Working hard and feeling fulfilled at Woods Hole Group alongside **Joe Famely '09** and **Ted Wickwire '96**, helping local communities build coastal resilience — join us!”



Nasser Brahim '10, Ben Blom '10, Eliot Logan-Hines '10, and Nick Olson '16 gather for Eliot’s llama Chawar wedding in Taos, New Mexico.

Chelsea Chandler writes: “Last April, **Scott Laesser '08** and I welcomed our son, Sylvan, to the world. We upgraded our '99 Camry to an electric car, which is working well for our family



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despite limited public charging in rural Wisconsin (I’m working on it). I’m directing the climate, energy, and air program at Clean Wisconsin, and this summer we’ll be celebrating our 10th season running Plowshares & Prairie Farm.”

Leslie King writes: “While I am and will always be Doctor Leslie, I am now also a commissioner for the Oregon Department of Fish and Wildlife, where I have joined fellow alum **Kathayoon Khali**. My most pressing goal is increasing diversity in the outdoors both in terms of participation and via promotion of a more inclusive narrative. I am also keenly interested in crafting a more equitable conservation model that values both game and nongame species. Finally, while ODFW now has a mandate to include the impact of climate change in all future management plans, my goal is to foster a more practical application of this mandate via greening all current and future building/facilities operations, including charging stations required for an electrified vehicle fleet. ODFW commissioners are appointed by the governor and confirmed by the Senate for four-year terms with the option of a single renewal for a maximum of eight years of service. Thus, it will be quite interesting to see how my 2030 class note reads.”

David Henry writes: “I am delighted to still be a full-time dad to Iris, Charlie, and Douglas. When I am not with them, I help lead a group, Senate Circle (senatecircle.org), that helps support competitive, underfunded U.S. Senate races. Happy to be back on the political side of environmental work. Come say hi if you are ever in Concord, Massachusetts!”

Ben Larson writes: “After 15+ years of carpetbagging to work on longleaf and loblolly, black gum and bald cypress, I’m now learning about shelterwood sequences and Appalachian coves in my home region of the Mid-Atlantic, working to diversify habitats with The Ruffed

11 CLASS VOLUNTEERS
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CLASS NOTES

Grouse Society and American Woodcock Society. I especially love establishing partnerships with other conservation orgs, state and federal agencies, and paper and packaging companies.”

Gina Lopez Solorzano writes: “While the world seemed to be sleeping off 2020, I said yes to the two biggest adventures of my life: marriage and parenthood. In October, I got married, moved to San Francisco (from Santa Rosa, California), and conceived twins who were then born the following June. Those two keep me plenty busy and happy. So, in December 2021, I decided to leave my job as a project analyst for Living Systems Alliance, a nonprofit that builds collaborations on a regional scale to reduce catastrophic wildfires. I continue to volunteer as a board director for LandPaths, a Bay Area nonprofit that connects people to the land. I love connecting my babies to the land through neighborhood walks and hikes in the twin carrier on local trails, which always stops people in their tracks.”

12 CLASS VOLUNTEERS
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Brian Kauffman writes: “My wife, Stacey Kallem, and I welcomed Charlotte Lena Kauffman on May 23, 10 days after moving to the suburbs of Lower Merion from our 10 years in Center City, Philadelphia. Everyone is healthy and getting some sleep never. Big brother Henry (4) loves his baby sister and has a hundred nicknames for her already; I like ‘Baby Shoo Shoo’ the best. We are embracing intense domestic time and getting settled in the suburbs. We love the Wissahickon Creek Trail and Schuylkill River and teaching our kids about ‘trail running,’ which has supplanted hiking because toddlers love to move. One of my favorite ways of passing the early days of the pandemic was joining **Chris Colvin** ’13 via FaceTime at his gym for crazy HIIT workouts. Total lifesaver. Chris is a boss. For work, I’m four years with Enel North America as an analyst and advocate to reform PJM Interconnection’s electricity markets in the Mid-Atlantic region and change rules that impose barriers for clean energy. It’s a real trip to charge our Honda plug-in with our Enel JuiceBox charger

after getting a passion for electric vehicles at Yale back in their infancy. It’s always great to hear from friends — please reach out and come through Philly this summer!”



Brian Kauffman ’12 and wife, Stacey, with their little ones.

Bassem Khalifa writes: “After almost a decade documenting Egyptian food heritage and selling good, clean, fair local food, my interest was waning just as COVID emerged. I was privileged enough to spend a good third of the pandemic by the beach on the Mediterranean. This year sees me pivoting back to tech and development through the interlinkages of food, energy, and transport. I’m on the business team of fast-growing U.K. impact startup Ox (oxdelivers.com), which designs off-road, rural EV trucks (launched at COP26) and is deploying them to offer transport as a service in our pilot country, Rwanda. I’m fully remote and working out of Cairo (for now) — get in touch!”

Daniela Marini writes: “Dear fellow classmates of 2012, I miss you a lot. This year is our 10th anniversary! To celebrate, I want to share some updates about me: After completing my PhD in geography at the University of Colorado Boulder in 2020, I’m now an assistant professor at the



Daniela Marini ’12 is an assistant professor at the Integrative Studies Department at Grand Valley State University.

Integrative Studies Department at Grand Valley State University. I continue conducting research in Argentina. My work focuses on political agroecology efforts in the central temperate region of the country, mostly covered with GMO soy fields. Not all efforts to transition to a less-toxic agricultural model are rooted in environmental justice work. My job as a researcher is to document and elevate the voices of transformative alternatives. Please reach out if you are in Michigan or Argentina. And let’s plan a reunion!”

Shelly Barnes Thomsen writes: “Managing public affairs and conservation for a water and sewer district in beautiful Lake Tahoe. I was honored to receive the 2022 California Water Environment Association Community Engagement and Outreach Person of the Year Award. The biggest achievement of the year was working crazy hours during the Caldor Fire to ensure firefighters had reliable water to fight the fire while our entire community was evacuated.”

Pablo Torres writes: “I moved to Durham, North Carolina, with my wife and two daughters and rejoined USAID contractor RTI International. I am helping lead RTI’s international climate and energy work. Let me know if you are in the area!”

13 CLASS VOLUNTEERS
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Jeffrey M. Yost, jeffrey.m.yost@gmail.com

Ellen Arnstein writes: “I’m a Westie now! I moved to Seattle in June 2020 to start as forest stewardship program manager with King Conservation District. I coordinate the urban forestry program and herd the cats that do rural forestry and wildfire preparedness. On the weekends I haunt foggy Puget Sound beaches. During the pandemic **Nara Lee** ’14 and I opened up our highly exclusive monthly call to include **Sumana Serchan** ’14, **Ambika Khadka**, **Mio Kitayama** ’14, and **Sam Ostrowski**, and it’s been great trading reports on the weather, vaccine rollouts, babies, and our super awesome successes.”

Bonnie Frye Hemphill and **Aaron Paul** write: “Aaron and I are doing well, chasing 3-year-old Gideon, who’s chasing the chickens, who are chasing the old pup as we all get ready for Giddy’s brother arriving early April. Workwise, Aaron’s leading forest acquisitions for the new Bluesource Sustainable Forestry Company; I’m building both a public affairs and sustainability desk for a 102-year-old construction company. But we hit the hills as much as we can. We’d love to see you on the trail or around the table.”

Pablo Peña writes: “I recently made an exciting move from professional work in environmental policy to academia. I started the doctoral program in socio-legal studies at the University of Oxford to do research on law and deforestation using empirical methods. I’ll be back in Peru soon to conduct my fieldwork somewhere in the Amazon!”

Teodora Stoyanova writes: “While still in the midst of the ongoing COVID pandemic, quite a few changes happened for me. In October 2020 I started as an associate for the SEE program at the European Climate Foundation. In October 2022, I took my first trip abroad after almost four years of not traveling to other countries. Enjoying life close to the beach and the occasional 15-minute snowfall in the winters of Varna.”

Mona Wang writes: “Entering the most daunting, nerve-racking, and exciting chapter of life yet: motherhood! Wah? There’s something more complex than protecting the planet? Raising future planet stewards to continue to care for this place we call home might be our greatest endeavor yet. Who knows? They might even help us figure out the first puzzle challenge.”

14 CLASS VOLUNTEERS
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Dominique Bikaba writes: “With Strong Roots Congo (strongrootscongo.org), we are working on a connectivity program to bring about 600,000 hectares of traditional forestlands into sustainable conservation to preserve remaining populations of the critically endangered and endemic eastern lowland gorilla and other wildlife species. This community-based conserved area is an ecological corridor connecting two existing protected areas in eastern Democratic Republic of Congo, catalyzing long-term conflict resolution over protected area management in Central Africa. Part of the program effort is for landscape restoration for wildlife habitat connectivity, improved livelihoods for forest peoples, and the creation of means for climate change adaptation and resilience while repairing biodiversity degradation from illegal extraction of strategic natural resources, poor governance structures over traditional lands, and unsecured ancestral land tenure.”



Dominique Bikaba ’14 in Kahuzi-Biega National Park, Democratic Republic of Congo.



Four-year-old Avalon, daughter of Lynette Leighton ’14, explores the beach in Okinawa, Japan.

Lynette Leighton writes: “Konnicchiwa from Okinawa, Japan! We arrived on island in July 2020 and have been trying to do, see, and eat as much as possible between lockdowns. I am still working as

an environmental planning project manager for a California-based company, Merlin and Sterling are soaking up the rays and views from our oceanfront house, we welcomed our second baby girl in 2021, and my husband was recently promoted to major in the USMC. Hope to reconnect with folks when we return stateside!”

Lin Shi writes: “I’m excited to complete my PhD defense via Zoom and am now working at Amazon’s Lab126 as a sustainability scientist. I’m grateful that my kitty, Calvin, is growing fierce and healthy. I recently picked up drawing because of him.”

15 CLASS VOLUNTEERS
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Shane Feyers writes: “In 2017, I began (and will soon complete) a PhD in interdisciplinary ecology at the University of Florida, where I studied conservation enterprises on private property. During this program, I spent a summer conducting a wildlife survey at a National Geographic Unique Lodge of the World in Costa Rica, published a book chapter offering a universal citizen science toolkit to measure and regulate impacts of tourism on habitat and wildlife anywhere in the world, led the development of a second IUCN resolution for sustainable tourism, and spent three months as a fellow for USFWS designing a five-year evaluation plan to measure efforts of urban wildlife programs on diverse stakeholder groups. In March of this year, I began a new position with the Florida Department of Agriculture and Consumer Services, leading a statewide stakeholder engagement effort to assess the needs, interests, and concerns of offshore aquaculture development. Come south, friends, nature down here needs help!”

Danielle Lehle writes: “I’ve been with the National Park Service’s Denver Service Center Planning Division for over five years. We work with park units all across the country on resource stewardship strategies, general management plans, trail management plans, visitor use management plans,

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strategic plans, wilderness plans, and so forth! I've worked with 66-acre national historic sites; 4,000-acre Civil War battlefield sites; and 3.3 million-acre national parks. My favorite project is whichever one I'm working on at the moment – and I currently have 10. Prior to the pandemic, I occasionally got to travel out to the park units to facilitate planning workshops. For the last two years it's been all virtual, but I'm hopeful that I'll get to travel again this spring. When not working, I play percussion with two community orchestras and try to spend as much time in the mountains as possible – skiing, hiking, backpacking, and/or photographing.”

16 CLASS VOLUNTEERS
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Raymond Waweru, raymond.waweru@gmail.com

Mikael Cejtin writes: “After Yale, Ash Draper ('16 YSN) and I moved to a remote part of New York north of the Adirondacks. In 2018, I moved to Albany to work in state government, and Ash was recruited back to YSN as faculty. We got married in 2019 and bought a house in Hamden in March 2020 right as COVID hit ... hello, loneliness! This fall I started a new job at The Nature Conservancy as coordinator of the Staying Connected Initiative, a U.S.-Canadian, multistakeholder partnership that conserves and restores wildlife corridors and habitat connectivity in the northern Appalachians-Acadian ecoregion, roughly the lands from New York to Nova Scotia. With 30x30 policies advancing and historic federal funding for conservation, there are now real opportunities to secure the interconnected network of lands and waters urgently needed for wildlife to move and migrate due to climate change. It is both a scary and thrilling time to be doing this work! Best wishes to my fellow YSE alums, and I hope to (re) connect with many of you this year.”

Katie Christiansen writes: “Hello from the ponderosa forests of Colorado! Life is good here. My work these days is mostly composed of developing, illustrating, and writing interpretive

signs for parks and protected areas in the West. These are fun projects to complete with rewarding, tangible outcomes: signs in the ground describing beautiful places. My book, ‘The Artist’s Field Guide to Yellowstone,’ came out last spring, and I’ve illustrated two other books on topics including predator-friendly ranching and wildlife power dynamics, both out this year. I’m artist-in-residence at the Northern Rockies Conservation Cooperative, where I get to work with fellow YSE alumni across Montana, Wyoming, and Idaho. Jordan and I have our hands full with two kids, Crosby and Sylva, and pup Juneau is living her best life, though she misses spontaneous raids of Nica’s dumpsters. But then again, don’t we all?”

Mike Johnson writes: “Leah and I welcomed baby Isla to our family last June (the name ‘Kroon Girl’ was briefly considered). We take daily walks through our neighborhood in Tacoma, identifying street trees and looking for new depave projects. In January, we made it up to Mount Tahoma (Mount Rainier) for Isla’s first snowshoeing trip and look forward to sunny days to enjoy more PNW trails. Leah and I continue to work in public service for the city and the state, and while it was great to Zoom-in to our virtual fifth reunion, we look forward to the next time we can all dance together in Bowers and clean up dishes in Kroon kitchen.”



Mike Johnson '16 and family at Mount Tahoma (Rainier) in Washington.

Deborah Merriam writes: “I am a full-time arboretum director working on a great consulting project partnering with Friends of the Blue Hills on a grant-funded program to develop an invasive species management plan for Ponkapoag Pond, a 500-acre Area of Critical Environmental Concern in the Blue Hills Reservation. The great thing about this project is that we are using iNaturalist, a citizen science data collection platform, to gather the data. Currently we have trained more than 250 volunteers to collect data on seven invasive species

and five native species. This is a yearlong project that gets folks out to enjoy nature and learn about plants at the same time! Once the plan is approved by the state of Massachusetts, volunteers will be leading the charge to remove as many of the invasive species as possible.”

17 CLASS VOLUNTEERS
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Erik Connelly writes: “I miss F&ES/YSE every day and keep in touch with alumni all over the world. I am happy to report that my work causes me to regularly bump into YSE colleagues. There are many stories, so to name just a couple of fun examples: **Tristanne Davis '16** and I met up in Luxembourg on sustainable packaging work (and definitely went out for drinks afterward). **Kevin Ogorzalek '07** has been an amazing mentor and friend here in Chicago after a happy accident led us to meet during our work on a sustainable sugar-sourcing project. I appreciate our YSE community and know there is always an open door to ask questions and share learning in a safe space (be that online through random messages or in person). I’m currently in Chicago working in corporate sustainability in the food/consumer goods industry. I look forward to seeing you around as we all continue to cross paths, doing our best for positive impact in our work and communities! Let me know if you’re ever in Chicago. (Come back and visit again one day, **Sara Rose!**)”

Shams-il Arefin Islam writes: “I am currently working in Toronto, Canada, as a senior program officer on scope 3 emissions reduction for an organization called Pur Projet (headquartered in Paris, France). I work specifically on inseting practices for large-scale suppliers in agroforestry and carbon neutrality and advising clients on the latest developments in Article 6 under the Paris Agreement, science-based target initiatives, and various other critical environmental reporting guidelines. I recently appeared in the November 2021 Reader’s Digest *Our Canada* magazine.”

Yi Shi writes: “Happy Lunar New Year! I just want to resurface and say hi to my fellow tree huggers. After YSE, I spent a year in Connecticut and Rhode Island doing green banking before hopping over Lake Ontario for an MBA at the University of Toronto. I got out of school at the peak of COVID and ended up working in sustainable investing with the lovely Canadians. I now find myself across the Atlantic in London. Are there any YSEers here? Helloooo? Hit me up on LinkedIn, and let’s meet up!”



Anja Nikolova '17 and Yi Shi '17 caught up in London.

18 CLASS VOLUNTEERS
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Julia Calderon Cendejas writes: “Hi, all! Last year I joined South Pole to develop projects that generate carbon credits from conservation, reforestation, and restoration of forests, grasslands, and wetlands. It’s a finance tool that gives these projects more resources to operate and continue their good work. Also, it allows me to work holistically in pursuing social, environmental, and climatic goals (and to listen to all the amazing conservation stories around the world). Please get in touch if you want to learn more about carbon markets, if you know of projects that could benefit from the generation of carbon credits, or if you just want to chat!”

Jeremy Menkhaus writes: “My wife, Samantha, and I were blessed to welcome our second baby boy (in just 17 months!), Cole, in June 2021.”

19 CLASS VOLUNTEERS
Prerna C. Bhat, prernacbhat@gmail.com
Christine M. Ventura, drweiss@icloud.com
Santiago Zindel, Santiago.zindel@aya.yale.edu

Prerna Bhat writes: “After five different jobs (plus a number of side gigs) in the approximately two years since graduating, I left the (mostly virtual) campaign trail and am now seven months into my first-ever permanent job (i.e., one that doesn’t end a week after Election Day) working on climate, energy, and environmental policy for Sen. Elizabeth Warren. I moved up to D.C. in the fall and have enjoyed running into YSE classmates – both literally on the street and on the bus to work as well as in Zoom meetings. They weren’t kidding when they said your YSE classmates are the people you’ll be bumping into and working with for the rest of your life! And living with – I’m very lucky to have **Andy Lee** as one of my housemates. As the weather and hopefully the COVID situation improve, I hope to reconnect with more folks in the D.C. area and get plugged into our YSE community here. I’m always down to explore fun events and go on adventures!”

Peter Ludwig writes: “Hi! I live in New Haven with my partner, Kristin, and almost 4-year-old son, Ellison. That’s how long you have been out of school: Ellison is going to be 4. I do market engagement for the Connecticut Green Bank’s commercial lending programs. In 2022, I expect to graduate from the Financing and Deploying Clean Energy certificate program at Yale. I also serve on the board of Common Ground High School in New Haven and Operation Fuel, a nonprofit helping lower-income households afford energy bills. Come and say hi when you visit New Haven!”

Thomas (Launer) Nygaard writes: “I will be legally changing my last name to my mom’s family’s maiden name: Nygaard. Those of you with keen eyes may have noticed I used this name on our class photo, as it was a decision I made among all of you. Lots of love and gratitude to those who helped me become who I am today: Thomas Nygaard! And Guia is doing great! He recently turned 7 and is as fluffy, outgoing, and contemptuous as ever.”

20 CLASS VOLUNTEERS
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Andrea Cruz Quiroz, cqandrea@gmail.com

Minshu Deng writes: “I’ve been working at the Climate Imperative Foundation since our virtual graduation. Outside of that I’m enjoying life with two front teeth and plant babies in San Francisco. My fiancé, Andrés, and I are recently engaged and I’m basically trying to recreate MODs in Yosemite as my wedding.”

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Suman Chandra writes: “Half of the time I dream of honing my son to be the prime minister of India, and the other half I plan how I myself can be one. In between, I glimpse out the window to catch some snow, waiting to see if Zoom-doom is over and I will see the light of day in Kroon!”



Suman Chandra '22 and her son, Alexander.

IN MEMORIAM



COURTESY OF WWF

Thomas E. Lovejoy '63 BA, '71 PhD (1941–2021)

Conservation biologist Thomas E. Lovejoy '63 BA, '71 PhD, known for his decades-long field research on deforestation in the Amazon, inventing “debt for nature” swaps, and promoting the term “biological diversity,” died December 25, 2021, at his home in McLean, Virginia. He was 80.

Lovejoy's commitment to reducing deforestation and its impacts on plants and animals and his work to call attention to the concept that an increase in carbon dioxide would lead to global temperature increases put him at the forefront of some of the most important issues facing humanity in the 20th and 21st centuries.

Lovejoy studied biology at Yale and was a longtime member of the YSE Leadership Council. He also served as an assistant at Yale's Peabody Museum of Natural History and as an advisory board member of the Yale Institute for Biospheric Studies. He held several highly visible positions at leading NGOs, including chief biodiversity advisor for the environment for the World Bank, assistant secretary at the Smithsonian Institute, and executive vice president of the World Wildlife Fund. In April, Lovejoy received the National Geographic Society's 2022 Hubbard Medal posthumously. The award recognizes Lovejoy's “extraordinary contribution to conservation biology and understanding and protection of the Amazon.”

“Tom was an amazing role model. He was a scholar with real-world impact in not only advancing — even creating — a field but also working in complex diplomacy with governments to advance conservation and reduce deforestation,” says YSE Dean Indy Burke. “He believed with all his heart that each of us

“Tom ever danced on the edge of politics and science, even inventing the notion of nature-for-debt swaps in the 1980s as a way for wealthy nations to fund nature preserves in developing countries — an idea that has been revisited in the form of carbon tax credits.”

ALEXANDER BRASH '85 MFS

could make a difference with our science and with our diplomatic and empathetic advocacy. He was an eternal optimist despite what he witnessed. I'll always remember his elvish smile.”

YSE Oastler Professor of Population and Community Ecology Os Schmitz says that while Lovejoy's research findings were sobering, he was never discouraged.

“Tom Lovejoy was that rare breed of scientist who had multifaceted capabilities. He not only had the capacity for deep, technical scientific thinking and analysis but also the ability to step back and distill that technical knowledge in ways that helped solve environmental problems,” Schmitz says. “He was a genuine and caring colleague and an excellent mentor to young scientists aspiring to assume their own careers at the nexus of scientific research and application. He made our world a better place in which to live.”

Friend and colleague Alexander Brash '85 MFS, who worked with Lovejoy at WWF, says Lovejoy was able to give voice to conservation by bringing the issue to the attention of influential and politically connected people.

“Tom ever danced on the edge of politics and science, even inventing the notion of nature-for-debt swaps in the 1980s as a way for wealthy nations to fund nature preserves in developing countries — an idea that has been revisited in the form of carbon tax credits,” says Brash. “He spoke tirelessly about the issues important to him. Always trying to reach a wider audience, he leveraged his charm. I will always think of him as Mother Nature's elf on Earth — always smiling, self-deprecating, witty, welcoming, and immeasurably bright.”

Allen U. Bedell '66 MF (1938–2022) passed away on January 3, 2022. He was born and raised in Louisiana and earned his BSF degree from the LSU School of Forestry in 1960. Upon graduation, he was employed by Fordyce Lumber Company in Arkansas, where he met and married his wife, Lou. He took a leave of absence from Fordyce when it was sold to Georgia-Pacific Corporation in order to attend YSE. Allen went on to start two family tree-chipping businesses: Circle B Logging and Quality Stand Density Control, which he owned and operated until his retirement in 2006. Allen served on the Executive Committee of the Arkansas Forestry Association for over 31 years. While president of the association, he was instrumental in adopting the National Log-A-Load for Kids Program, which has raised over \$10,000,000 for Arkansas Children's Hospital. In 1991, Allen joined nine loggers in establishing the Arkansas Timber Producers Association. In 1998, *Timber Harvesting* magazine recognized the Bedell family — Allen, wife Lou, son David, and daughter Donna Twyford — as the winner of its inaugural Logging Business of the Year Award. In March 2017, Allen was inducted into the Arkansas Agriculture Hall of Fame, being only the fourth representative of forestry to be so recognized. The LSU Alumni Hall of Distinction inducted him into the 2017 Hall of Fame of the Forestry, Wildlife, and Fisheries Alumni Association. Allen was a lifelong, devoted member of the United Methodist Church, serving as a Stephen Minister; chairing committees; singing in the choir; and serving in all areas of local missions as well as those in Juarez and Rio Bravo, Mexico. He taught Bible studies and Sunday school classes for over 50 years.

Robert S. Bond '52 MF (1925–2021) passed away on August 28, 2021, at the age of 96. He was born in Cambridge, Massachusetts; enlisted in the United States Coast Guard in 1943; and trained as a signalman and navigator serving in the Pacific during World War II. Since his early high school years, Bob knew he wanted to pursue a career in forestry. Following a year of post-high school grad studies at Cushing Academy, he received his bachelor's in forestry from the

University of Massachusetts, an MF from YSE, and a doctorate in forest economics from the College of Forestry at Syracuse University. His career included two summers on a U.S. Forest Service lookout in Montana, working for a private lumber company in Arkansas, spending two years as a forester with the Massachusetts Department of Environmental Resources, serving for 21 years on the faculty of the University of Massachusetts Forestry Department, and serving for 10 years as director of the School of Forest Resources at Penn State. Bob was elected a fellow to the Society of American Foresters. He co-owned a woodlot in central Massachusetts, where he managed the forest and built a family “camp” and eventually a retirement home. Bob married Barbara Ann Simmons (who died in 2012) in 1950. They had a long and happy marriage of 62 years. Bob was active into his mid-80s, working in the woods and playing tennis and golf. In the years after Barbara's death, Bob and a family friend, Sue Bourne, became companions and enjoyed their time together talking, watching sports, and traveling.

Jeffery Burley '62 MF, '65 PhD (1936–2021) passed away shortly after Christmas 2021. Jeff went to Oxford in 1957 to study, first for a BA and then a master's in forestry at Yale. The subject occupied a contentious position within the university. For more than half a century, a battle had been waged between those who saw the huge practical importance of research and education in forestry, particularly in poor parts of the world, and those who did not see it as an academic subject worthy of a place at Oxford. He completed his PhD at Yale, where his thesis was on the genetic variation of Sitka spruce. He lived and worked for several years on agricultural research in Zambia, Malawi, and Zimbabwe (then Rhodesia) before returning to Oxford. Jeff's experiences on the ground in Zambia were hugely influential, and he recognized that pure science alone could not solve problems that were at heart a complex interaction among social, economic, and biological elements. From 1969 to 1976, Jeff worked for the Commonwealth Forestry Institute before becoming a university lecturer in forestry from 1976 to 1983. In 1983 he was appointed head of the University of

Oxford Department of Forestry, a role he filled until 1985. Jeff served as director of the Oxford Forestry Institute from 1985 to 2002 and, among the hundreds of academic publications that he either authored or contributed to, edited the “Encyclopedia of Forest Sciences.” From 1996 to 2000, he was president of the International Union of Forest Research Organizations and helped to drive a shift in viewpoint away from a focus on forest production to the environmental and social benefits of forests. As an emeritus fellow at Oxford's Green Templeton College, Jeff spearheaded the Fellowship Appeal 2020: Climate Change Imperative and was actively engaged in the college's sustainability agenda until shortly before he died. Jeff was honored by the YSE Alumni Association Board with the Distinguished Alumni Award in 2015.

Donald E. Foster '65 MF (1929–2021) passed away on December 23, 2021. Don was born in New Haven and grew up in Connecticut along with his brother, Bob, who passed away in 2001. Don graduated from the University of Connecticut in 1952 and was subsequently drafted by the Army and served for two years during the Korean War. After his military service, he pursued his lifelong interest in conservation, forestry, and America's national parks. He completed the National Park Service's Park Ranger Training Program and went on to YSE, where he received an MF in 1965. Don's career in forestry and park management took him all over the world. He was a park ranger and forester at Yellowstone National Park, Pinnacles National Monument in California, and the Western Forestry Center in Portland, Oregon. He also worked as a service forester for the Royal College of Forestry in Sweden and consulted with private landowners on timber management and environmental protection. In 1977, Don moved to Roanoke, Virginia, with his wife, attorney Tonita (“Toni”) Minge Foster, and helped manage her two legal clinics. They raised their son, David, in Virginia. Don greatly enjoyed travel and traveled with his family all over the U.S. as well as abroad, visiting Australia, China, Russia, and numerous countries in Africa and Europe.

R. Holt Hogan '57 MF (1931–2020) passed away peacefully at home on December 13, 2020. A resident of Keysville, Virginia, since 1977, he owned and operated Ontario Hardwood Company. He was always interested in working with men and equipment to produce a useful product. He made a variety of innovations, including high-speed hardwood kilns and stacking practices that have become widely used in the industry. He embraced new ideas and emerging technologies. A graduate of the University of the South in Sewanee, Tennessee, he served in the Counterintelligence Corps of the U.S. Army during the occupation of Japan at the end of the Korean War. He then earned an MF from YSE and worked for various forest product companies until he settled in Keysville. During his retirement, he enjoyed entertaining friends and family, windsurfing, and woodworking.

Andrew L. Johnson '68 MFS (1937–2021) passed away on June 19, 2021, after a brief illness. He was a prominent conservationist, residing in Chadds Ford, Pennsylvania. In 1953, while attending a Boy Scout Jamboree in Irvine, California, the then-16-year-old encountered organizations dedicated to natural resources and conservation, which became his passion. He served as executive director of the Brandywine Conservancy during its formative years from 1970 to 1976, during which he oversaw the renovation of the old mill building that became the Brandywine River Museum. He was president of the Natural Lands Trust from 1979 to 1988 and went on to found the North American Land Trust, serving as its president until he retired in 2015. The nonprofit NALT — a land conservation group that has worked on more than 550 projects in 23 states involving more than 136,000 acres of protected land — was Andrew's crowning professional achievement. Andrew had a keen sense of business and what would motivate people to do the right, charitable thing; he saw things from different angles and would come up with creative solutions.

Evar L. Knudston '58 MF (1935–2021) passed away on January 21, 2021. He was born in Keene, New Hampshire, and raised in Warwick, Massachusetts, six miles from the junction of Massachusetts, New Hampshire, and Vermont. He received his undergraduate degree from the University of Massachusetts Amherst at a time when only 5,000 students attended the school. Evar retired from a civil service career of 34 years with the U.S. Forest Service, except for two years in the Army in Korea. Evar spent his summers fighting forest fires throughout the United States. He kicked off the fall each year with time spent hunting elk at Core's Camp. Family Thanksgivings and Christmases were spent at the beach in the camp trailer beachcombing, crabbing, and clamming. He instilled his love for the mountains and the beach in all of his kids. After his wife, Sandy, retired, they traveled to the casinos of Oregon, Washington, and Nevada to enjoy the shows and walk along the riverfronts and beaches. As time went on, Evar became an avid reader, with Louis L'Amour being one of his favorites. His commitment to the Boy Scouts started in 1948 as a scout and carried through to 1995. He participated in activities throughout the years with annual canoe trips on the McKenzie and Willamette rivers in Oregon.

Virginia ("Ginger") M. Reilly '76 MF (1952–2021) passed away on September 2, 2021, in Seward, Alaska, while on a vacation with her husband, son, and daughter. Ginger was born in Elizabeth, New Jersey, on April 9, 1952, the daughter of Walter and Frances Reilly. She grew up in nearby Linden, New Jersey, and graduated from Linden High School. Ginger graduated from Rutgers University in 1974 with a bachelor's degree in forestry. She went on to receive her MF from YSE in 1976. Ginger began her professional career in Texas with Kirby Forest Industries. She moved to Summerville in 1979,

where she joined Westvaco, met and married her husband, and raised her family. Ginger retired from Westvaco after 27 years of service. Her career at Westvaco included a number of different roles, including maintenance manager, technical forester, and minerals manager. She was most proud of her service as district forester, guiding over a dozen people and 90,000 acres of land through the worst fire season the company ever experienced as well as the aftermath of Hurricane Hugo. Upon retirement, Ginger turned her energy toward her many passions. She was an active master gardener, volunteering at Magnolia Plantation. Ginger also served as a South Carolina long-term care ombudsman and served in several roles with local and community schools. She was very active in the Society of American Foresters at local, state, and regional levels, serving in a number of offices. Those who knew Ginger knew her as a caring friend, a loving wife and beloved mother, a lover of plants and animals, and someone who would do anything to help a person in need.

Harry G. Spencer '54 MF (1928–2016) passed away on August 10, 2016, but we only learned of his death recently. He was reared and educated in New Jersey. Following high school, he served in the U.S. Army at the end of World War II. After his service, he graduated from Rutgers University and then received his MF from YSE. He married Patricia Mendenhall on June 10, 1953, and worked many years for Weyerhaeuser, then was the head forester for Roseburg Lumber and for Sun Studs. Later he started Growth Unlimited Tree Nursery. He was musically gifted, playing both clarinet and oboe in Coos Bay, Oregon. He loved woodworking, carving, and making stained glass windows. He was a member of the Society of American Foresters.

William I. Stein '52 MF, '63 PhD (1922–2021) was born July 22, 1922, in Wurzburg, Germany, and died nearly 99 years later in Corvallis, Oregon, on June 28, 2021. In early 1929, after managing a large farm near Flandreau, his family sought a milder climate and purchased a 54-acre farm north of Dundee, Oregon. He attended Pacific College in Newberg, Oregon, and was awarded a BS in 1943. He was drafted in May 1943 and then, enabled by the GI Bill, he completed a bachelor's in forestry at Oregon State College in 1948. He earned his master's and PhD at YSE. As a junior forester with the USDA Forest Service in Seneca, Oregon, he marked trees for harvest. He then transferred to the Wind River Experimental Forest near Carson, Washington, where he began a 41-year research career with the Pacific Northwest Forest and Range Experiment Station. His tasks at Wind River included remeasuring reforestation plots, establishing growth plots, and performing cooperative work on rodent control. At the Cascade-Siskiyou Research Center in Roseburg, Oregon, he conducted reforestation studies and led a seeding, planting, and nursery practices research unit for 13 years based in Portland and Corvallis. Large-scale field studies on reforestation alternatives started before retirement in 1990 continued to draw much of his time as an emeritus researcher. He had been a member of the Society of American Foresters since 1949.

John P. ("Jack") Vimmerstedt '58 MF '65 DF (1931–2021) passed away on September 3, 2021. He was born in Jamestown, New York, on June 5, 1931. Jack worked for the U.S. Forest Service, Bent Creek, Pisgah National Forest, North Carolina. He pursued further education in forestry at North Carolina State University and Yale, receiving a master's and DF from YSE. Jack worked at the Ohio Agricultural Research and Development Center in Wooster, Ohio, until his retirement. His professional career in forestry research addressed

reclamation of soils on strip mines, soil management in high-use areas such as campgrounds, and use of waste streams such as sewage sludge to improve forest soils. Jack taught and mentored graduate students at Ohio State University, where he was known for his contagious enthusiasm and deep knowledge of woodland ecosystems. His passion for forestry extended to his volunteer work, and he served on the Wooster Shade Tree Commission and the Ohio Governor's Forestry Commission. For many years, Jack assisted in managing the Christmas tree plantation for the Wayne County Chapter of the Izaak Walton League.

Robert A. Walton '57 MF (1929–2019) served in the Navy after he graduated from high school in Shreveport, Louisiana. He earned his BS in forestry from LSU and was hired by Union Bag Paper Co. in Savannah, Georgia. In 1954, Bob married Annie ("Billye") Jenkins and had three children. His oldest daughter was born in Yale New Haven Hospital while Bob was a student at YSE after receiving a scholarship in 1956. He received his degree from Yale in 1957 and continued to work for UBPC (later, Union-Camp Paper Co.) for a total of 41 years. After retirement, he and Billye moved to Lake Prince Woods, a retirement community in Suffolk, Virginia. Bob passed away on March 30, 2019, and was interred in Horton Veterans Cemetery in Suffolk, Virginia. "Bob was very proud of his time at Yale!" says Billye.

THE LIFE(CYCLE) AND TIMES OF A YSE T-SHIRT

When it came time to design and source more sustainable school swag for YSE and The Forest School, Wan Ping Chua '21 MEM and Leah Wise '22 DIV had a perfect combination of skills and experience to undertake research based on a life cycle assessment approach (LCA).

BY PAIGE STEIN

Wan Ping Chua '21 MEM wears a new sustainably produced YSE T-shirt while enjoying the nature at Red Rock Canyon National Conservation Area in Las Vegas, Nevada. She calls the city home since accepting a remote position as life cycle associate at SCS Global Services.



Wan Ping Chua '21 MEM and Leah Wise '22 DIV may have grown up halfway around the world from each other, but their respective skills and experience complemented each other perfectly when a shared commitment to sustainability brought them together to work on the Yale School of the Environment sustainable swag project.

For the project, Chua and Wise spent several months working under the direction of Sara Smiley Smith '07 MESC, '07 MPH, '16 PhD, associate dean of academic affairs, research, and sustainability, researching the design and sourcing of new apparel items — the first new swag items produced since the name change to the Yale School of the Environment (from Yale School of Forestry & Environmental Studies) and the establishment of The Forest School — to ensure they met high standards of sustainability.

Growing up in Singapore, Chua developed an early interest in sustainability when she attended the country's first liberal arts college and took her first environmental studies class.

"It focused on systems thinking, wicked problems, and the imbalance of power, which is the backbone of many of the environmental problems we see today," Chua says. "The class cemented for me, personally, that there was no other problem more urgent in the world."

To help source sustainable and ethically produced merchandise, Chua and Wise undertook research using a life cycle assessment approach, which evaluates potential environmental impacts throughout the entire life cycle of a product (production, distribution, use, and end-of-life phases) or service. They considered agricultural practices, textile production, labor ethics and compliance, responsible dye and printing practices, biodegradability, shipping and transport, and consumer use.

Although Chua's first exposure to life cycle assessment (LCA) was in a class taught by Yuan Yao, YSE assistant professor of industrial ecology and sustainable systems, which she describes as "fantastic," Chua says part of what made their research approach unique was Wise's real-world experience with apparel and consumer choices.

"Leah brought with her a lot of on-the-ground experience, which is not necessarily reflected in LCA databases," she says. "In that sense, LCA was more of a guiding framework for us, and we were able to combine those real experiences to make the analysis richer."

Wise, who most recently managed a thrift shop in Charlottesville,

Virginia, has been thinking seriously about fashion and consumer choices in the "real world" since she worked at a national retail chain more than a decade ago. "I noticed that some of the merchandise was listed as handmade by artisans, and I began to wonder what it meant for a \$2 item to be handmade by someone on the other side of the world," says Wise. "It inspired me to do a deep dive into the ethics of manufacturing."

Wise's "deep dive" also inspired her to start StyleWise, an ethical fashion blog in which she offers information and shopping guides to help readers find more sustainable alternatives to popular brands. Wise's experience with the complexity of weighing ethical and sustainable choices proved extremely valuable when researching the options for YSE apparel, as things weren't always cut and dried.

"It wasn't always clear whether a domestically produced non-organic T-shirt or a fair trade, organic T-shirt produced overseas was a better option. And then we needed to account for size inclusivity, price point, and consumer demand," Wise says. "In working toward our sustainability goals, it became clear to me that every choice is a compromise, but that doesn't mean it's bad. We need dramatic change across the industry, and I hope that in sharing our process, we can show that the fashion industry already has the tools and resources to do better."

As a life cycle associate at SCS Global Services, Chua is already putting what she learned into practice to help the company's clients achieve their sustainability goals.

"We help clients identify where the hot spots are along their product's value chain and consequently direct them on where they should focus in order to reduce environmental impacts," Chua says. "It is really interesting since the work spans sectors from fashion to tech to agriculture and even services-based industries." ♻️

New sustainable YSE and Forest School apparel can be purchased online through Campus Customs at: <https://yse.to/swag>



*Older styles of swag also are available for sale online through the Campus Customs website while supplies last.

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