Yale SCHOOL OF THE ENVIRONMENT

IMPACTS

2023 ANNUAL REPORT

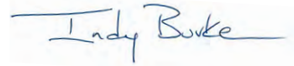
Knowledge and leadership for a sustainable future

Throughout the summer, no doubt like many of you, I followed the news on the disasters and severe weather events that seemed to follow one after another, from record-breaking heat waves stretching across Asia, Africa, Europe, and the U.S., to the series of wildfires that affected all 13 provinces and territories in Canada, to the grass fires that overwhelmed Maui, among others. The causes of these disasters, which so profoundly affect human health, well-being, livelihoods, and, of course, mortality, are complex. Finding effective and equitable ways to address them is a massive undertaking, requiring informed leadership, innovative interdisciplinary thinking, and visionary policymaking. The good news is that our faculty, students, and alumni are committed to contributing the high-impact investigation, analysis, and leadership that we need to meet these challenges and combat the climate crisis.

This past year our faculty have been engaged in several such high-impact endeavors. Professor Daniel Esty is currently on leave working with World Trade Organization Director-General Ngozi Okonjo-Iweala to develop a sustainability agenda for an international trade system that aligns the WTO with the world community's commitment to achieve net zero greenhouse gas emissions by 2050. Professor Eli Fenichel recently returned to YSE after an 18-month appointment at the White House Office of Science and Technology Policy, where he led a 27-agency team that produced a roadmap for expanding the national economic accounting system to better reflect the role of natural capital in driving economic growth (page 2). Here in New Haven, Professor Karen Seto is co-directing the new Yale Center for Geospatial Solutions, which will focus on harnessing rapid advancements in geospatial data to develop place-based, scalable solutions (page 6).

At the end of the summer, we welcomed the Class of 2025 to YSE. The 156 students in the incoming class, one of the most diverse in our school's history, come from 31 countries and from 29 U.S. states and territories. Among them are 21 inaugural Three Cairns Scholars who come from 13 countries throughout the Global South (page 12). We launched the Three Cairns Climate Program for the Global South at the Yale School of the Environment last summer, and even in its nascent stages the program has drawn significant interest from prospective students, employers, and the global climate community. We are grateful to Lise Strickler '82 and Mark Gallogly for the opportunity to build and grow this transformative program aimed at supporting emerging climate leaders. These are just a few highlights, but you will find many more examples of the potentially game-changing work being done at YSE in this issue of "Impacts."

In my commencement address in May, I noted that we were collectively launching one of the world's most powerful forces of environmental leadership into career paths across the planet. We don't, however, launch this powerful force into the world only at commencement. We do it every day through the work of our students, faculty, staff, and alumni, including the graduates of our certificate programs. Our challenges are increasingly urgent and complex, but our energy, enthusiasm, and determination are boundless. As always, I am grateful for your support and your input, which has made so much of this possible, and I look forward to working with you to build on this momentum over the coming year.



Indy Burke, *Carl W. Knobloch, Jr. Dean*

ISTOCK.COM / TRIGGERPHOTO

National and Global Impact

This spring, Eli Fenichel, Knobloch Family Professor of Natural Resource Economics, participated in a high-level United Nations meeting on "Accelerating the achievement of the Sustainable Development Goals in middle-income countries, with a focus on the environmental dimension." The forum was organized to examine the gaps and challenges of middle-income countries (MICs) in the implementation of the 2030 Agenda for Sustainable Development and promote the implementation of sustainable development goals through practical, evidence- and science-based solutions. Together, MICs represent about one-third of the world GDP and account for about 60% of global carbon dioxide emissions (mostly due to about 10 rapidly growing economies).

Fenichel, who recently returned to YSE after taking an 18-month leave to serve as assistant director for natural resource economics and accounting in the White House Office of Science and Technology Policy (OSTP), was a member of a panel aimed at facilitating a wider discussion on expanding and/or changing the measurement of sustainable development to better guide national policymaking and development cooperation. In his presentation at U.N. headquarters in New York City, he noted that GDP was "only one tool in the toolbox we need for measuring progress and making macro-economic decisions, and the two have to move together."

At OSTP, Fenichel led a 27-agency team that produced the "National Strategy to Develop Statistics for Environmental-Economic Decisions," a roadmap for a multiyear effort to expand the national economic accounting system to better reflect the role of natural capital in driving economic growth. "Dr. Fenichel's vision, leadership, knowledge, and skills all contributed directly to this pioneering effort. We are thrilled to be co-leading an effort to put nature on the country's balance sheet and see this report as the beginning of important work that will contribute to a robust U.S. economy," commented an OSTP spokesperson at the time of the strategy report's public release in January. He also played a critical role in developing the draft of the federal government's first-ever guidance to help federal agencies account more fully for costs and benefits linked to the environment, which was released in August and is expected to be finalized within a year.

CHRISTIAN ZIEGLER / MAX PLANCK INSTITUTE OF ANIMAL BEHAVIOR

Animals, such as the coati (*Nasua narica*), play a key role in the natural regeneration of forests.

Climate Smart Forestry

What impact is the commercial use of forests having on climate change? Assistant Professor of Industrial Ecology and Sustainable Systems Yuan Yao led a study published in the *Proceedings of the National Academy of Sciences* that quantified the greenhouse gas mitigation potential delivered by different combinations of forest management and wood utilization in pine forests in the southeastern United States. Her research found that forests used for cross-laminated timber and wood residue production were estimated to mitigate the highest amount of greenhouse gases over a 100-year period.

Yao, whose research focuses on life cycle assessments of innovative wood products, says there has been a gap in understanding the climate mitigation potential of protected forests versus commercial use on marginal lands.

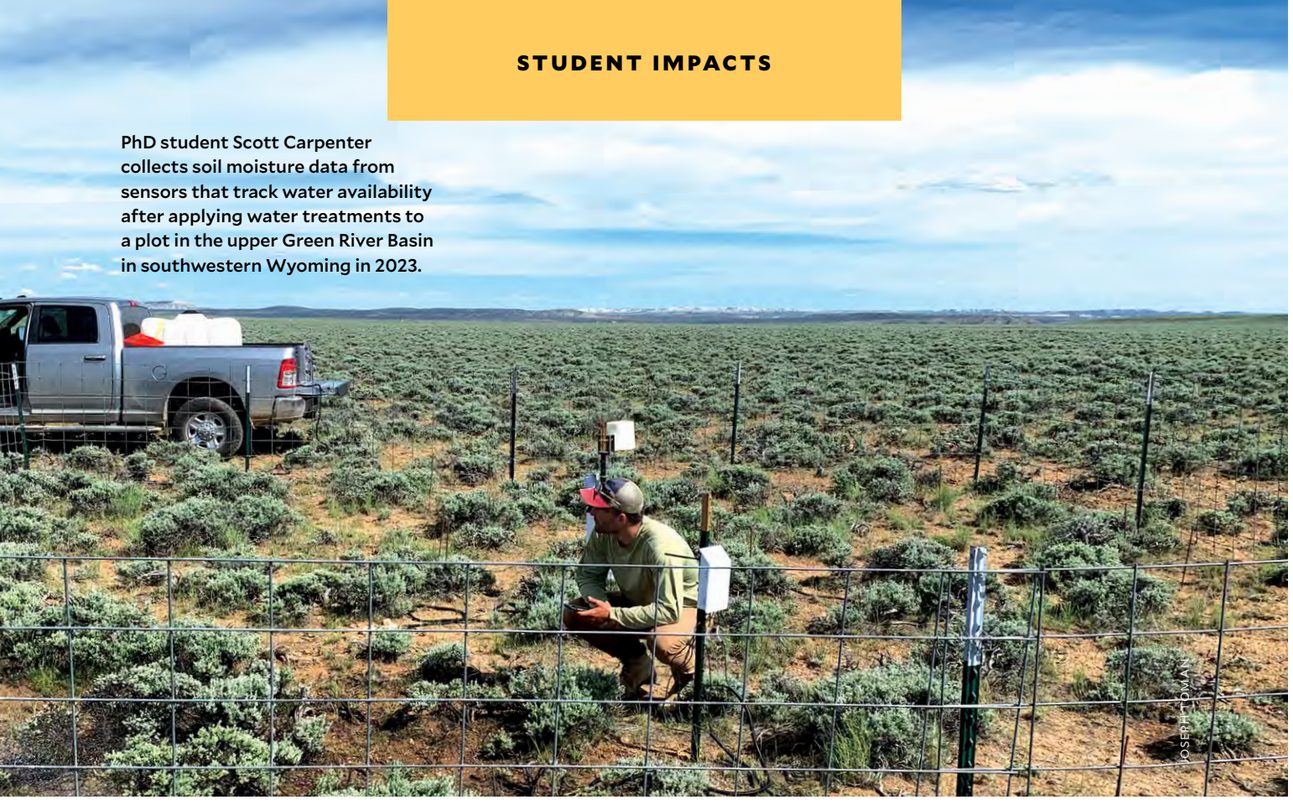
"We identified regions and environmental conditions where innovative wood products can maximize carbon storage and GHG mitigation," Yao says. "Planting commercial forests for innovative wood products such as cross-laminated timber and biochar in those regions is likely to provide more GHG mitigation in the long term, while planting pine forests for protection is likely to yield more GHG mitigation in a short term."

A New Understanding of the Role Animals Play in Forest Restoration

Efforts to restore forests have often focused on trees themselves, but Tropical Forest Ecology Professor Liza Comita's research has widened the lens, examining the role animals play in restoration. A study by Comita and postdoctoral associate Sergio Estrada Villegas, published in a special issue of the Royal Society journal *Philosophical Transactions* as part of the U.N. Decade on Ecosystem Restoration, found that birds and mammals, including bats, play a vital role in the recovery of tree species by carrying a wide variety of seeds into previously deforested areas. In tropical forests, more than 80% of tree species can be dispersed by animals.

Comita, who is co-director of the Yale Center for Natural Carbon Capture, said the study is part of a larger effort by her lab group to investigate the role of species interactions in natural regeneration, with current projects looking at how plant-pathogen and plant-insect interactions drive shifts in tree species composition and diversity as tropical forests recover from past human disturbance.

Today, more than 1 million species are threatened with extinction, and in the past 50 years world wildlife populations have declined by almost 70%.



PhD student Scott Carpenter collects soil moisture data from sensors that track water availability after applying water treatments to a plot in the upper Green River Basin in southwestern Wyoming in 2023.

JOSEPH T. DIMAN

Tracking Climate Change Impacts in Dryland Ecosystems

Big sagebrush ecosystems in the Western U.S. are under increasing pressure from climate change. These dryland plant communities are a critical resource for livestock grazing and wildlife while also providing ecosystems services like erosion control and carbon storage.

To understand how a changing climate is influencing this important, widespread vegetation type, Scott Carpenter, a fifth-year doctoral student, has been conducting field experiments and collecting data in southwestern Wyoming. His research tracks how big sagebrush plant communities are reacting to extreme weather events such as droughts and intense storms, as well as shifting precipitation patterns.

The impacts of climate change are highly variable, says Carpenter, who is working with researchers from the U.S. Geological Survey under the direction of Professor William Lauenroth, an ecosystem ecologist whose current research is on big sagebrush plant communities and ecosystems in western North America. In high-elevation big sagebrush communities, as temperatures warm, snow melts earlier and the plants green up sooner, altering patterns of forage availability and, in some cases, potentially allowing for earlier livestock grazing due to increased productivity. In more southern areas of sagebrush distribution, declines in precipitation are leading to decreased productivity.

Carpenter is using data he is collecting — which include the impacts of invasive species and the recovery of big sagebrush from an extreme drought event a decade ago — to better understand how future climate scenarios may impact the continued stability of big sagebrush ecosystems.

He is also contributing to the Bureau of Land Management's online science and practice portal, providing information on the implications of climate change for mixed-use land management policy in the sagebrush region, including livestock grazing.

Carpenter was one of 15 recipients of the 2023 Katherine S. McCarter Graduate Student Policy Award, which provides training and opportunities to meet with congressional policymakers.

"YSE has been important in my journey toward understanding that there are a lot of environmental problems that need rapid action and there is a need for people who understand the science and the research to communicate with corporations and policymakers so they can make informed decisions," he says.

THE NUMBER OF APPLICATIONS TO YSE ROSE FOR THE FIFTH YEAR IN A ROW, INCREASING

68%

FROM 2019 TO 2023. YSE RECEIVED THE MOST APPLICATIONS IN ITS HISTORY IN 2023. THIS YEAR'S INCOMING CLASS COMES FROM 29 STATES AND 31 COUNTRIES.

Exploring the Potential for Reuse of Carbon Waste

Increasing adoption of electric vehicles is critical to decarbonizing transportation. In some transportation sectors, such as aviation or shipping, however, the use of battery power and electrification is not yet feasible.

Harrison Meyer '24 MEM/MBA and a team of students are working on developing a method of electrolysis to capture carbon from industrial processes, and/or the atmosphere, and convert it into green chemicals that could then be turned into net-negative fuel for airplanes, ships, and heavy machinery, or used in petrochemical production.

"We want to create a net-zero fuel source that treats carbon not as a waste, but as a valuable resource for products and services we all need," Meyer says.

The circular economy venture, called Carbon Loop, was a finalist for the 2023 Sustainable Venture Prize at Startup Yale and won the Audience Choice Award. It also took first place in the climate category at the 2023 Yale Innovation Summit.

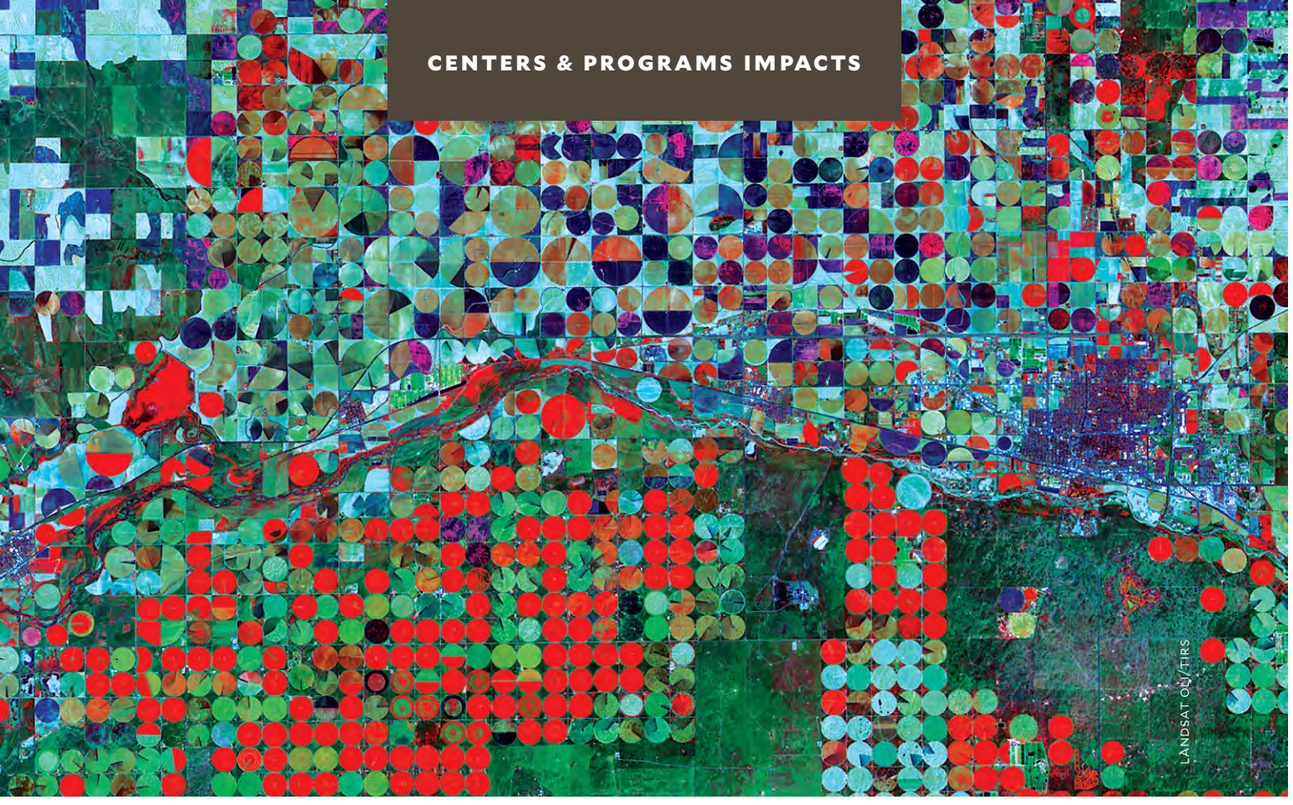
Meyer and his team, which includes Perry Bakas '24 MBA and PhD student Conor Rooney, are currently conducting an independent study focusing on a life cycle assessment of Carbon Loop. Yale Center for Business and the Environment Executive Director Stuart DeCrew is supervising the study.

Evaluating Threats to Connecticut's Forests

When Eli Ward '18 MFS '23 PhD was hired this year as a forest ecologist at the Connecticut Agricultural Experiment Station, she was excited by the opportunity to put her years of research experience into practice. At Yale, she focused on the basic ecological research of carbon and nitrogen cycling. Now, she has the chance to work with foresters, landowners, land managers, and other stakeholders across Connecticut, letting their needs and concerns guide her research priorities.

Much of her focus thus far has been on the threats of invasive plants, pathogens, and organisms. Recently, beech leaf disease was detected in Connecticut. "All the beech trees across the state are affected by it," she says.

Many may start to succumb in the next year or two. At the agricultural experiment station, she is working with entomologists and pathologists to better understand the disease — and what they might do to help stop it.



Using Geospatial Science to Find Climate Solutions

From cell phones to satellite imagery, a staggering amount of geospatial data can be collected and analyzed every day. The new Yale Center for Geospatial Solutions co-directed by Karen Seto, Frederick C. Hixon Professor of Geography and Urbanization Science at YSE, aims to use those data to help find solutions to today's global environmental challenges, such as climate change, biodiversity loss, and forest degradation.

A geographer by training, Seto is one of the world's foremost experts on urbanization's impact on the planet.

The new center, co-directed by Costas Arkolakis, a Yale professor of economics, will focus on conducting transformative, place-based research and bringing geospatial research to decision-makers. It also aims to foster new collaborations within Yale and develop strategic partnerships with the private and public sectors.

"The scale and pace of new geospatial data and analytical methods are transforming how we see and understand the world," Seto says. "Our goal is to harness the geospatial data revolution and connect it with Yale's domain expertise on issues of global importance to develop solutions for specific places and also at scale."

Getting Climate Change on the Irish Mind

The Yale Program on Climate Change Communication (YPCCC) partnered with the Irish Environmental Protection Agency to produce Climate Opinion Maps of Ireland, which detail how climate change beliefs, risk perceptions, and policy support vary at the county and regional levels across Ireland.

The maps reveal, for example, that while a large majority (85%) are worried about climate change, that number only varies between 79% and 88% across all counties in Ireland. The interactive maps allow users to compare a variety of attitudes on climate change among Ireland's 26 counties and eight regions with the national average. They are based on the "Climate Change in the Irish Mind" study (CCIM), an earlier national survey of the Irish public's beliefs regarding climate change, and are meant to be interpreted alongside the CCIM report as well as the 2022 "Climate Change's Four Irelands" report, which identified four distinct audiences related to climate change beliefs within the Irish public: the Alarmed (36% of the adult Irish public), the Concerned (48%), the Cautious (12%), and the Doubtful (3%). The work is part of a broader initiative by the Irish government to combat climate change and engage the country's population in climate change solutions.

THE UCROSS HIGH PLAINS STEWARDSHIP INITIATIVE HAS COLLABORATED WITH MORE THAN

192

EXTERNAL PARTNERS DURING THE PAST FIVE YEARS, GIVING STUDENTS HANDS-ON EXPERIENCE IN BUILDING CONSERVATION CAPACITY IN THE AMERICAN WEST.

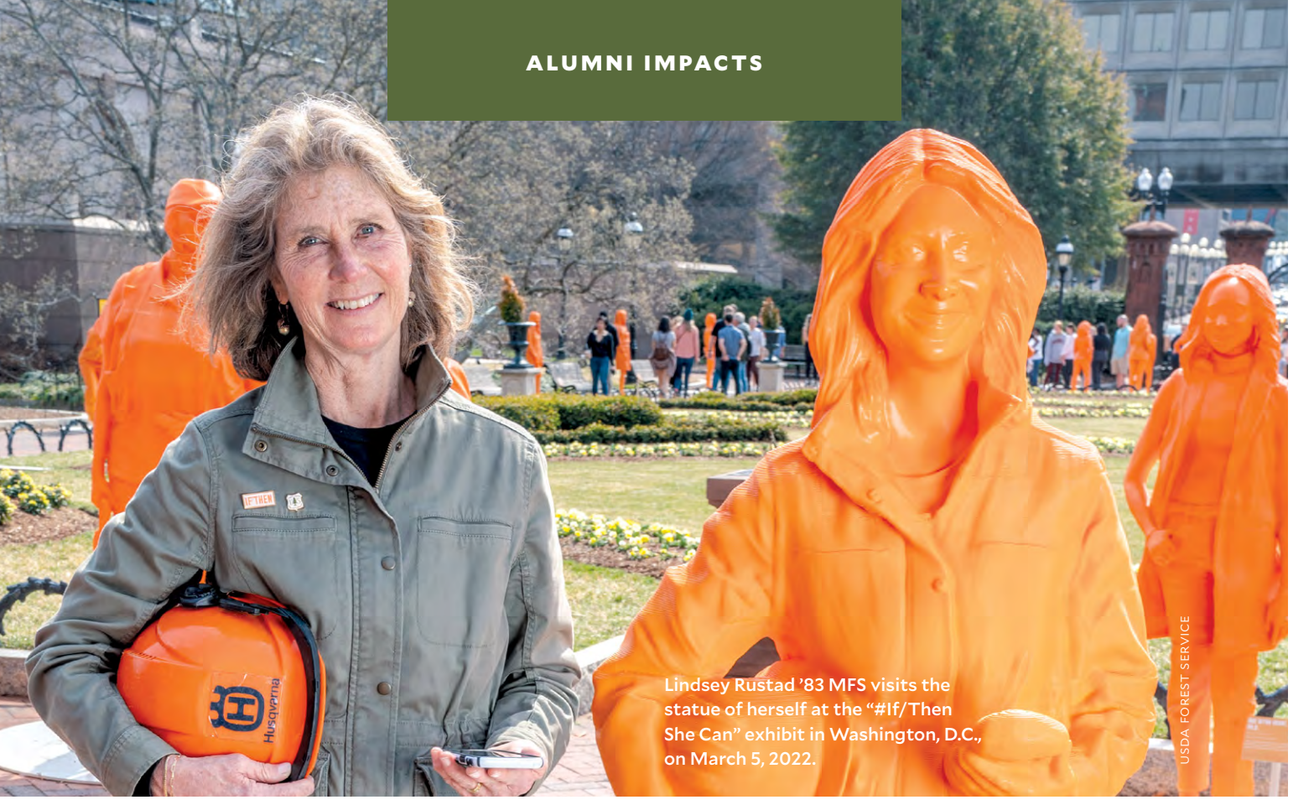
Applying Systems Thinking to Early-Stage Climate Change Mitigation Ventures

In the Endless Mountains of northeastern Pennsylvania, Ryan Smith '23 MF established an agroforestry demonstration farm that is promoting tree crops as a climate positive solution and serving as an educational hub for farmers and the public to learn about agroforestry. This year he was able to expand the farm with the help of a Yale Center for Business and the Environment Climate Innovation Grant. The grants are part of the center's efforts to support innovative, early-stage climate solutions. Smith's farm is one of seven projects from among 20 teams that competed that were awarded seed money.

Ryan Smith '23 MF expands his orchard with new Chinese chestnut trees planted during volunteer day with YSE students in October of 2022.

"We received some incredible applications from the student community that spanned bio-concrete solutions, alternate materials, agtech solutions, sustainable fashion, and beyond," says Aishwarya Kuruttukulam, program manager and Environmental Innovation Fellow at CBEY and the Tsai Center for Innovative Thinking at Yale. "YSE's emphasis on systems thinking and community-focused innovation has laid the foundation for brilliant entrepreneurs who the ecosystem truly needs."

Christine Kohler '23 MEM, who developed a tool to crowdsource information on farmers' climate impacts and practices, and Storm Lewis '23 MESc, who is helping small farmers grow 100% pure mycelium, which increases soil's carbon capture capacity, also were awarded grants.



Lindsey Rustad ’83 MFS visits the statue of herself at the “#If/Then She Can” exhibit in Washington, D.C., on March 5, 2022.

USDA FOREST SERVICE

Inspiring the Next Generation of Women in Science

Not many of us can say we have had a statue erected in our likeness. But the impressive career of Lindsey Rustad ’83 MFS is certainly worthy of such an honor. Rustad was included in the “#IfThenSheCan” exhibit, a collection of 120 3D printed statues celebrating contemporary women in STEM displayed by the Smithsonian on the National Mall in Washington, D.C., in 2022. The exhibit, which also included Rae Wynn Grant ’10 MESc and Shyla Raghav ’09 MEM, is aimed at activating a cultural shift among young girls to see themselves as scientists in the making.

Museums across the country also hosted their own versions of the exhibit. Rustad’s statue was on display at NorthPark Center in Dallas, and a poster highlighting her career is included this year in the Montshire Museum of Science’s “This Is What A Scientist Looks Like” exhibit in Norwich, Vermont.

Rustad’s research has made her a leader in the field of forest science. From 1997 to 2022, she was based at the Hubbard Brook Experimental Forest in New Hampshire and was the U.S. Forest Service’s team leader there beginning in 2007. Last year, Rustad was appointed acting director of the USDA Northeast Climate Hub. Regional hubs aim to get the most relevant and accurate climate science into the hands of those who can put that science into practice, such as farmers, foresters, and land managers. But her heart is in the research itself, and she plans to return to Hubbard Brook.

“That’s all I want to be when I grow up,” she says. “I just want to be a research scientist.”

Rustad has been involved in projects that seek to understand how forests might adapt to an even warmer future with more extreme weather events. Her specialty is large-scale ecosystem manipulations, earning her the moniker “the Grand Manipulator.” She and other researchers at Hubbard Brook have mimicked drought conditions, run heating cables through forests to test how trees respond to warmer soils, and recreated an ice storm.

“We’re simulating a changing climate,” Rustad says, “and thinking about future forests.”

THERE WERE MORE THAN

6,500

OFFERS OF SERVICE BY YSE ALUMNI THIS YEAR TO THE SCHOOL COMMUNITY VIA ALUMNIFIRE, INCLUDING CAREER ADVICE, COLLABORATION ON PROJECTS, AND SPEAKING ENGAGEMENTS.

Building Global Partnerships for a Sustainable Future

As the chair and director of the Rob and Melani Walton Sustainability Solutions Service, Michael K. Dorsey ’96 MFS is at the helm of the world’s first extension service for sustainability. The service at Arizona State University works with businesses and governments to scale up four main vectors of sustainability: energy, finance, municipal resilience, and health and well-being. Dorsey and his colleagues at the extension service work with a network of over 600 scientists and scholars to build global partnerships, educate future leaders, and promote awareness on innovative sustainability solutions.

“We really are seeking out partners that want to deliver on our mission of delivering sustainability solutions,” he says.

With a career that stretches from governmental delegations to the boardrooms of clean energy companies and environmental nonprofits, Dorsey brings extensive climate and sustainability experience to the position. He has founded renewable energy companies and trade associations and taught climate justice at Dartmouth for 10 years. While serving on the faculty at Wesleyan University, he co-founded the Sunrise Movement, a youth initiative that advocates for the Green New Deal, with two of his students.

To achieve energy justice and avert a global climate catastrophe, Dorsey believes a full-court press is needed. “Even if we deliver fully on the Kyoto Protocol, we still stand a 50% chance of destroying the planet,” he says.

Behind the Scenes of the Passage of the Inflation Reduction Act

The Inflation Reduction Act of 2022 provides hundreds of billions of dollars in funding and programs to address the climate emergency. “It was the largest climate action that Congress has ever taken,” says Adrian Deveny ’09 MEM.

As Senate Majority Leader Chuck Schumer’s director of energy and environmental policy, Deveny was instrumental in getting that bill across the finish line.

It wasn’t easy: Deveny describes the negotiations as being among the hardest of his career. Still, “to be a part of that was incredible,” he says. “I would do it all over again.”

Before joining Schumer’s office, Deveny was the top environmental aide in Oregon Senator Jeff Merkley’s office and was Merkley’s legislative director for a year.

Deveny is now helping to implement the IRA’s programs and plans to ensure that the act achieves its ambitious goals.

STRATEGIC PLAN

Continuing the momentum

The Yale School of the Environment continues to build on its legacy of knowledge and leadership for a sustainable future and work toward the ambitious goals set out in its 2017 Strategic Plan through its scholarship, teaching, and practice.

Connecticut Governor Ned Lamont tours New Haven neighborhoods facing higher temperatures from the urban heat island effect. The tour on April 17, 2023, was led by Colleen Murphy-Dunning, director of the Urban Resources Initiative.

JOSEPH DWYER

GOAL: Build on historic strengths through research, training, programs, and initiatives

- YSE hosted several delegations on urban and forest initiatives. The Urban Resources Initiative (URI) hosted Connecticut Governor Ned Lamont and other state and local officials on a tour of New Haven that showcased efforts to increase tree canopy in communities of color and lower-income communities, which are disproportionately affected by urban heat island temperature increases. The Forest School hosted a bipartisan delegation from the House Committee on Natural Resources led by Committee Chairman U.S. Rep. Bruce Westerman ’01 MF (R-Ark.). The group visited Yale-Myers Forest to learn about sustainable forest management as well as Kroon Hall, where several YSE and Yale faculty spoke about ongoing research exploring carbon dioxide removal pathways for U.S. forests; forest products and wood technology in the context of carbon mitigation and sustainable design; and research projects currently underway at the Yale Center for Natural Carbon Capture.

- New research led by Professor of Environmental and Energy Economics Kenneth Gillingham and published in the *Proceedings of the National Academy of Sciences* reveals that advances in battery range and lower costs are driving the rise of electric vehicle sales, and that EVs could make up a majority of cars sold by 2030. Gillingham noted that for policymakers, the findings suggest that rapid change and ambitious goals might be achievable.

GOAL: Create and support new interdisciplinary scholarship, teaching, and outreach

- Peter Raymond, professor of ecosystem ecology and senior associate dean of research, and Xuhui Lee, Sara Shallenberger Brown Professor of Meteorology, are developing a new course on the physical science of climate change. It will cover the components of the Earth's climate system, including the role of anthropogenic greenhouse gases; the impacts of climate change on natural ecosystems, energy use, water resources, and food; and advances in modeling global and regional climates.

- A new interdisciplinary course, "Carbon Removal as a Decarbonization Pathway," examines the need, scale, and timeline for carbon dioxide removal expressed by international climate commitments and corporate goals. Students in the course, taught by Anastasia O'Rourke '09 PhD, managing director of the Carbon Containment Lab, will learn about mechanics, risks, measurements, economics, and the potential of new carbon removal technologies from a series of guest speakers who are active entrepreneurs in the field.

GOAL: Diversify our faculty, students, staff, and our partnerships more broadly so that we can think, act, and engage most effectively with the wide breadth of environmental challenges.

- YSE welcomed Amina Ochirbat, associate director of international admissions and student success, and Stefany Batista Reyes, an embedded counselor to the School. Both will draw on their personal backgrounds to assist international students as part of their work at YSE. Ochirbat, who was born in Mongolia and raised in Ireland, has assisted international students in admissions and student affairs since 2015. Her experience helps inform her work with students from diverse backgrounds, she says. Batista Reyes, who was born in the Dominican Republic, says her background as an immigrant to the United States has given her insights into the unique social, financial, and emotional challenges faced by international students.

- From advancing renewable electrification in South Asia to restoring woodlands in Central Africa, the inaugural Three Cairns Fellows are implementing innovative climate solutions across the Global South. Part of the Three Cairns Climate Program for the Global South at YSE, the Fellows program provides scholarship support to midcareer environmental professionals seeking to enroll in one of YSE's online certificate programs. Last fall Tropical Forest Landscapes: Conservation, Restoration, and Sustainable Use (TFL) welcomed 16 Fellows in its inaugural cohort, while Financing and Deploying Clean Energy (FDCE) admitted five participants as Fellows. Both programs increased the number of Fellows admitted in their 2023–2024 cohorts. YSE also welcomed 21 inaugural Three Cairns Scholars to its New Haven campus this fall. The Scholars program is an enhanced scholarship initiative supporting qualified master's students from the Global South who are committed to advancing climate solutions in their home countries.

YSE WELCOMED

21

THREE CAIRNS SCHOLARS FOR 2023–2024 FROM

13

COUNTRIES IN THE GLOBAL SOUTH:
BANGLADESH, BRAZIL, COLOMBIA,
DOMINICAN REPUBLIC, ECUADOR, GHANA,
INDIA, MEXICO, NEPAL, PAKISTAN, PERU,
PHILIPPINES, AND THE GAMBIA.

5

YSE STUDENTS — THOKO CHANGUFU, WEIXI WU, PRATIMA GARG, CALLA ROSENFELD, AND JAYSON VELAZQUEZ — WERE CHOSEN TO PARTICIPATE IN THE ASPEN INSTITUTE'S FUTURE LEADERS CLIMATE SUMMIT IN SPRING 2023, GIVING NATIONAL EXPOSURE TO THE STUDENTS' RESEARCH AND EFFORTS ON CLIMATE MITIGATION.

TONY FIORINI

GOAL: Build and maintain our leadership on issues of national and international importance

- Frederick C. Hixon Professor of Geography and Urbanization Science Karen Seto, a world-renowned expert on urbanization, was elected to the Council on Foreign Relations. Seto is the third YSE faculty member — along with Daniel Esty, Hillhouse Professor of Environmental Law and Policy, and Professor of Environmental Justice Gerald Torres — selected to join the illustrious foreign policy organization.

- YSE is sponsoring research by two Ukrainian scientists through the Universities for Ukraine Non-Residential Fellowship Program. Both of the scientists are assessing the scope of environmental damage caused by the war with Russia. Lesia Danyliuk, lecturer at Vasyl Stefanyk Precarpathian National University in Western Ukraine, is studying the impact of the war on environmental rights, management, and public access to environmental information. Oleg Skrynyk, senior researcher for the Ukrainian Hydrometeorological Institute, is assessing potential nuclear fallout from rocket attacks on Ukraine's nuclear power plants. YSE Professor of Economics Matthew Kotchen spearheaded YSE's participation in the program, noting that "their work has never been more important."

MARK CONRAD

GOAL: Develop areas of emerging strength

☑ Dorceta Taylor, senior associate dean of diversity, equity, and inclusion and professor of environmental justice, led a thought-provoking study that examined nearly $5 billion in grants awarded by 220 foundations in 35 states. Among its most notable findings was the fact that the largest mainstream environmental organizations received more funding individually than did all the environmental justice organizations combined. Conducted through the Justice, Equity, Diversity, and Sustainability Initiative (JEDSI) at YSE, the study, which was published in Research Gate, catalyzed discussions in the non-profit community about disparities in environmental grantmaking on a micro and macro level. Some of the organizations that are most in need of funding are the ones getting the least funding to conduct environmental work, Taylor says.

☑ Sparkle Malone, assistant professor of ecosystem carbon capture, and Paulo Brando, associate professor of ecosystem carbon capture, are part of the scientific leadership team of the Yale Center for Natural Carbon Capture. As such, they advise the center's directors on strategic decisions and research themes and help to organize interdisciplinary workshops. Malone, who measures methane emissions crucial to understanding climate change, will lead a workshop on natural biogenic methane fluxes. Brando, who identifies climate-change related forest mortality using remote sensing and field observations, will lead a workshop on Amazon tipping points. Initiated by a $100 million gift from FedEx, YCNCC is dedicated to studying the fundamental and applied science of natural carbon capture and developing scalable strategies to reduce atmospheric greenhouse gases.

Help us continue the momentum

Your support will enable us to add further breadth and depth to our record of excellence and leadership of environmental efforts across the University.

SOME OF OUR GOALS IN THE NEAR FUTURE:

☐ Develop resources for new programs and professorships:

- urban systems and environmental justice
- environmental data
- environmental leadership
- climate change mitigation, communication, and policy

☐ Increase scholarship support for master's students of all backgrounds

☐ Raise funds to create new professorships and boost faculty recruitment for inclusive excellence

☐ Expand the doctoral program to broaden our research impact and scholarly influence

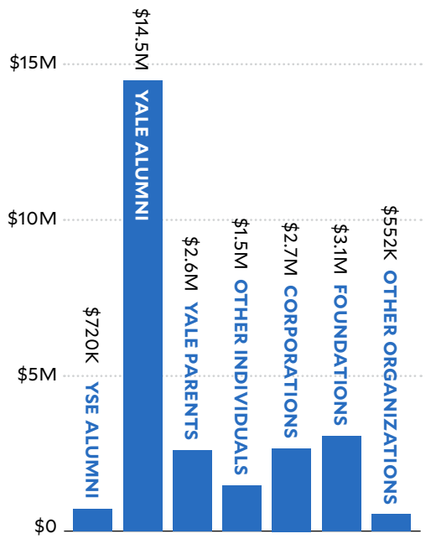
Financial Highlights

FY23 was another strong fundraising year for YSE.
In looking at the graphs below and on the opposite page, important notes to consider are:

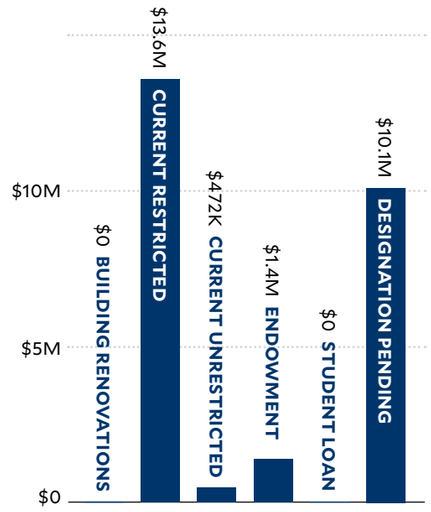
- The majority of the funds raised this year are restricted to specific programmatic goals and cannot be repurposed for other needs.
- Additionally, the majority of YSE's existing endowed funds (scholarships, professorships, etc.) are similarly restricted.
- Although the School's endowment is managed as part of the greater Yale University endowment, we are a self-supporting school within the University, and in fact, we pay Yale each year for our share of central services such as the library, fire and police protection, etc., through the University Services Assessment (12% of the School's expenses on the chart at right).

FY23 COMMITMENTS = $25,539,745.21**

COMMITMENTS BY SOURCE

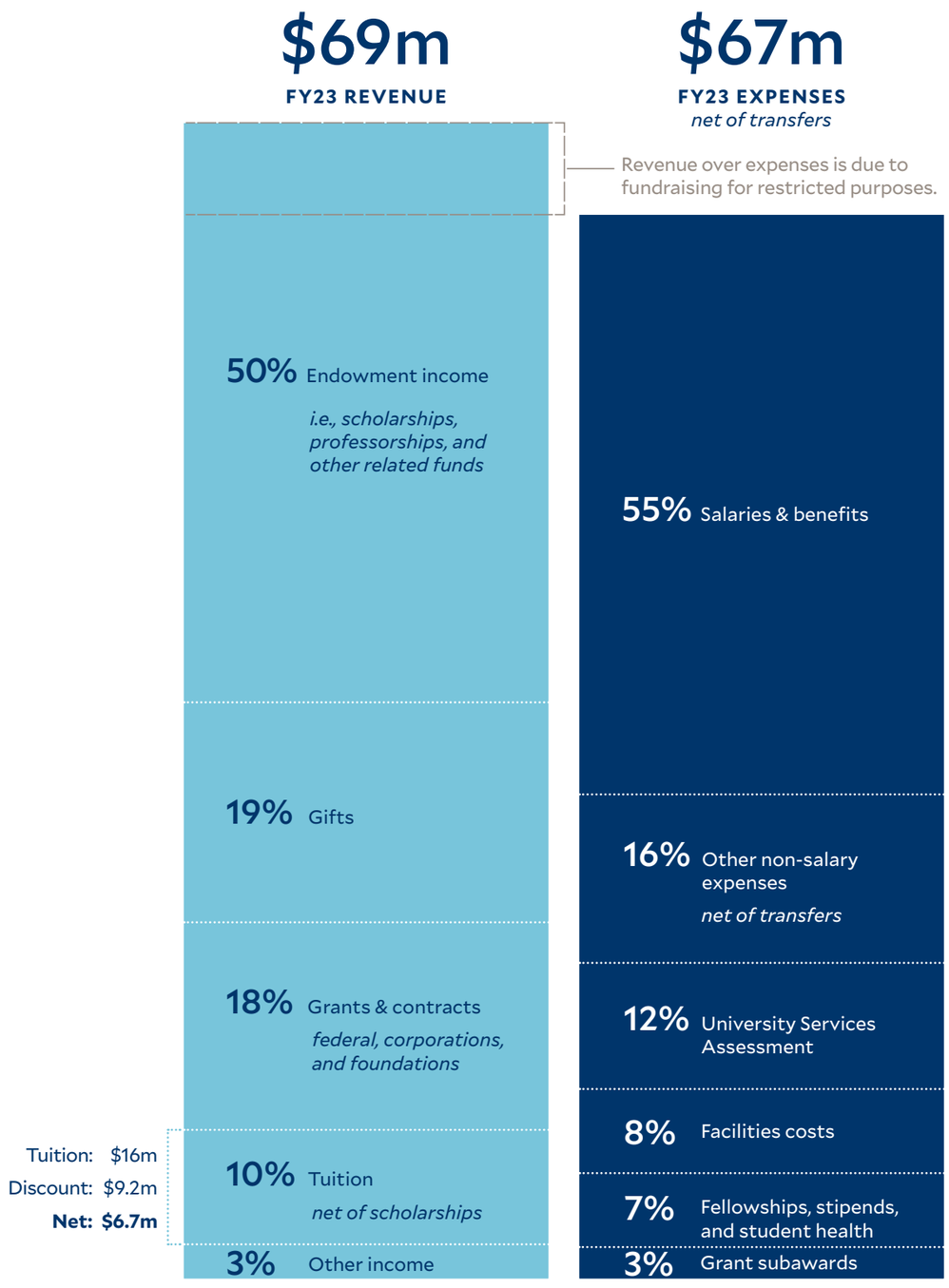


COMMITMENTS BY AREA



Data based on rounded numbers

***Gifts and new pledges*



Gifts to YSE create a foundation upon which our entire School is built.

Yale School of the Environment's singular approach in producing knowledge and leadership for a sustainable future has led to the creation of groundbreaking solutions with global impact.

Thanks to the support of generous alumni and friends, our world-class faculty can continue conducting innovative research across many disparate yet interconnected disciplines. Our remarkable students can graduate with unparalleled knowledge, skills, and experiences, backed by a curriculum that balances breadth and depth. YSE alumni can go out into the world as leaders, ready to solve our most pressing environmental challenges.

We will continue to lead, building upon our foundation of strength in research, education, and outreach, relentlessly pursuing an ambitious path to a sustainable future. Each and every dollar is essential for making this mission possible.

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2015

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2021

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Avangrid, Inc.
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Bezos Earth Fund
BNY Mellon
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A satellite image captures different growth stages, crop types, and vegetation health in Garden City, Kansas. The image was published in "City Unseen: New Visions of an Urban Planet" (Yale University Press) by Professor Karen Seto and Meredith Reba '14 MESc.

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