



# YALE FORESTS NEWS

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## How Sweet the Sap

Shaylyn Austin '23 MF, Research and Extension Fellow



Students tap for maple sap as part of the course “Maple: From Tree to Table” with Joe Orefice (right). Photo: Shaylyn Austin

This past year marked significant growth and learning for the Yale Forest Maple Education and Extension Program. Notably, we expanded our sugarbush into a stand treated with a thinning prescription written by last year’s Forest Crew. Their prescription focused on promoting the growth and vigor of maple trees to improve sustainable sugar production. We excitedly extended our tubing system into the treated area, doubling our taps from 215 to 412.


With this expansion, we had high expectations for this season’s syrup production, but suboptimal weather patterns resulted in below-average yields. We produced about 100

gallons of syrup, which is on-par with last year’s total production despite having half the number of taps. While this outcome was disappointing, we learned valuable lessons in optimizing our sugaring operations amidst increasingly unpredictable weather patterns.

On the education and extension side, the Yale-Myers sugarbush continued to serve as a hub for student and community learning. Students in Joe Orefice’s “Maple: From Tree to Table” class helped with tubing installation and boiling. Additionally, we held two public maple production workshops in February. We also led a workshop on reverse osmosis and evaporator use

for producers interested in upgrading their sugaring equipment.

Additionally, we partnered with the Branford Land Trust (BLT) to facilitate a tapping workshop on a BLT property. Twenty community members braved snowy conditions to learn about winter maple tree identification and best techniques for tapping. Each participant went home with a spout and tubing to apply what they learned to a tree of their own.

We are planning two workshops on sugarbush silviculture and harvesting operations in June. Stay tuned for more! 



## 2024 Annual Report

Joe Orefice '09 MF, Director of Forest and Agricultural Operations

Mark S. Ashton '85 MF, '90 PhD, Faculty Director, Yale Forests

### The Year Behind

Accomplishments abound at Yale Forests as we look back on 2023 and embrace spring in 2024. We are excited to have welcomed two permanent staff members to our team this past year: Laura Green '18 MF as research and extension forester; and George French as Yale-Myers Facilities Manager. Many of you will remember Laura from her time as a postgraduate associate at Yale Forests. Laura is an accomplished botanist and forester. Her position, new to Yale Forests, is responsible for conducting and coordinating research and land records, allocating research funding, enhancing public engagement and outreach, and furthering the collaborative relationship between Yale and Great Mountain Forest.

Our former caretaker Steve Prinn stepped down to enter his second retirement but we enjoy seeing him now and then at Quiet Corner Initiative events. Meanwhile, George French hit the ground running in May 2023, opening camp for the summer and learning the quirks of our facilities. Though new to our team, he has a long history with the forest. George's family sold the French Farm to Yale in the 1930s, which now makes up the core of our French Division and houses our research lab area. George's grandfather, Clifford French, was actually born in the French House, worked for Yale, and lived there until his death. We sincerely enjoy George's love for history and knowledge of Yale-Myers Forest (YMF) and beyond.

Matt Valido '21 MF completed his role as forest manager in 2023 and now works as a watershed forester in the Catskills for the City of New York. You can't get a better job if you want

to have the best of both the city and forest. In his place, Gracie Bachmann '23 MF started as forest manager in September 2023. She had a busy fall semester: leading the fall forestry field trip to the Adirondacks, hosting a successful FSC audit at YMF, and supervising timber sales. During winter break, she led a western forest crew with Save the Redwoods and Ben Blom '11 MF. Gracie and the crew got cold and wet in the Santa Cruz Mountains of California but learned a lot and had some fun too. Her eyes were on prescribed fire this spring, and she has two successful burns under her belt. Walker Cammack '22 MF also wrapped up as our agroforestry fellowship in 2023. He now works as program director for the Farm and Forest Living Lab at Smokey House Center in Danby, Vermont. We are excited for the many opportunities for Yale Forests to collaborate with Walker and Smokey House.

Forest crew and researchers once again spent the summer at Yale-Myers Forest. You can read more about forest crew of 2023 in Gracie Bachmann's article, "Four Seasons at Yale-Myers." We also welcomed the Quiet Corner Initiative public back on Wednesday nights for our summer seminar series – see Laura Green and Marlyse Duiguid's article, "Tales from the Woods."

MODs resumed in August at YMF. The new MODs program brings two groups to the forest for a week, meaning only a subset of the incoming class gets to visit YMF. However, ample class trips and events in the fall, such as our Harvest Festival, provided opportunities for incoming students to become familiar with YMF. Additionally, we started a new tradition at the Yale Camp at Great

Mountain Forest in August 2023, The Forest School Retreat. This two-day celebration and mingling of YSE forestry students, faculty, and staff have incoming students the opportunity to hike and learn about our school at our off-grid camp. A night of catered, locally grown food and campfires was followed by the arrival of second year students, faculty, and staff for a mid-day picnic and welcome.

Yale Forests has also been active in supporting professional forestry in the US. In May 2023, we hosted a bipartisan delegation from the House Committee on Natural Resources led by Committee Chairman U.S. Rep. Bruce Westerman '01 MF (R-Ark.) to understand and see what a managed forest looks like in New England. We have also been active locally. Mark, who is the current chair of NESAF, brought a group of students to the New England SAF meeting in March, and Joe sent a group to the national SAF meeting in October. We are proud of the management we practice and teach at Yale Forests, and we've been active in being more public about it. Here is a local article Joe wrote in support of forestry in Connecticut.

As part of the most recent spring Yale Forest Forum on Tribal Forestry, The Forest School hosted a group of students and faculty from Salish Kootenai College (SKC) for a week in March. For the final day, the group toured YMF with Marlyse Duiguid, Joe Orefice, Gerald Torres '77 JD, and Mark Ashton, learning about New England land use history, hardwood silviculture, and maple syrup production. The visit was a first step in ongoing collaboration and partnership between SKC, Yale Center



Snow covers logs harvested from "Hall and Oaks" marked in 2017, the final cut in this Plusnin Division shelterwood. Photo: Grace Bachmann.





Marlyse Duguid (left) leads students and faculty from Salish Kootenai College and YSE on a land use history tour at YMF. Photo: Mark Conrad.

for Environmental Justice, and The Forest School.

Our maple sugaring season wrapped up in late March. The weather was poor for sugaring this year. Exceptionally warm days meant reduced sap flow and increased sap spoilage. See article “How Sweet the Sap” by Shaylyn Austin ’23 MF for more on our maple program. We hope for a better season next year, but are glad to still have syrup to sell. Anyone interested in purchasing maple syrup to support Yale Forests can do so during the academic year at this link. Note that syrup will not be shipped.

The past year saw much needed improvements happen at YMF, generously supported by YSE. First up was repairing the foundation and termite damage in the Morse House. The entire 1770’s farmhouse was lifted off its foundation and had its original sills replaced with new local hemlock. We also took the opportunity to plug holes in the stone foundation and give the whole building a fresh coat of paint. The second major project at YMF is just wrapping up—an all-gender restroom section to the bathhouse. This new section is winterized and will help us support the increasing year-round use of the camp. We also renovated the entire bathhouse to provide increased privacy in the showers and better ventilation all around. At Great Mountain Forest, the Yale Camp will be undergoing repairs to the main buildings and a complete renovation of the director’s cottage. This is good timing as the camp is seeing increased use from YSE and researchers, in addition to hosting the 2nd annual Forest School Retreat in August.

### The Year Ahead

The year ahead will be busy at Yale Forests. Ashton and Orefice are collaborating with the University of New Hampshire on a major agroforestry research and extension grant. This project will implement experiments, sampling, and extension related to silvopasture, alley cropping, and food forests in New England. Orefice and Emily Sigman ’21 MF/MA are leading a collaborative project with Dartmouth and the CT Agricultural Experiment Station, funded by the USDA AcerAccess program, to address potential lead and PFAS contamination in maple sap and syrup from urban and rural contaminated sites.

Forest crew is shaping up well for the summer of 2024, but before it begins two student groups, including many crew members, traveled abroad on field trips. One group joined Joe for another Yale/Technical University Munich collaborative field trip to the Bavarian Alps. Another group went with Mark in Mata Atlantica region of Brazil looking at forest restoration projects with Daniel Piotto ’06 MF, ’11 PhD, Dean of the School of Agroforestry at the Federal University of Southern Bahia. Upon their return, forest crew will once again hit the roads and boundaries of YMF before diving into forest inventory and silviculture.

Our forests are still in the midst of mortality from the invasive emerald ash borer (*Agrilus planipennis*). Our strategy is to leave much of our ash in hopes that even a few will persist. While we will harvest ash within a timber sale

area, we are not actively pre-salvaging it throughout the forest. It is certainly sad to watch such an important species suffer. We’re hopeful that the trees we leave will support some level of ash regeneration and that those seedlings can grow up in a forest with predators that can better balance this introduced insect. Last year we had our first record of beech leaf disease at YMF—luckily we do not have much beech there. But some of our northern forests do and we dread to think what they will look like soon.

Our transition away from a period of lump sum timber sales to negotiated rates with loggers and buyers is starting to pay off. We’ve built new relationships and reaffirmed old ones in the forest products industry. Timber sales “Hall and Oaks ’17”, “Heavy Lifters ’22”, and “New Shungus ’23” were completed this past year and we have “Cut My Trees and Leave Them Too ’20” lined up to begin early summer. The white pine crown thinning of “Ticks or It Didn’t Happen ’21” was also harvested this past year, but extremely wet weather prevented us from completing the hardwood thinning. Forest crew will add to our timber opportunity by marking 25 acres of regeneration treatments and 100 acres of thinning treatments in the Plusnin Division this summer.

We hope many of you will visit us at Yale Forests this upcoming year, and we sincerely appreciate your continued support. 🍃





Top left: Forest Manager Grace Bachmann works with Perry Sawyer of Hull Forest Products to scale logs cut by CTDOT for road expansion, as Joe Orefice bucks them to length. Photo: Molly Sowash. Top right: Nate McMullen '25 MF sprays water across the fireline to protect a fire exclusion area in the Red Front Meadow. Photo: Marie Frank, TUM exchange student. Bottom right: Skis make forest work more fun in the winter! Photo: Grace Bachmann. Bottom left: Ingalls Scholars from Wesleyan University, Naomi Whitlock and Paul Kraut, measure gas fluxes across tree species. Photo: Jon Gewirtzman.





## Tales from the Woods: Updates in Forest Research

Marlyse Duguid '10 MF, Director of Forest Research

Laura Green '18 MF, Research and Extension Forester

By the numbers, 2023 was a successful and innovative year for Yale Forests' research program. Eight new studies began at Yale-Myers Forest (YMF), with researchers arriving from Yale, CT DEEP, Rutgers, and beyond. Six papers were published with data collected in whole or in part at Yale Forests—topics included the impact plant mycorrhizal associations and calving events have on soil nutrient cycling (Kristy Ferraro, '24 PhD, and collaborators), and the impact of insect prey species' defense strategies and their (also insect) predators' hunting modes on prey metabolic response (Nathalie Sommer, PhD candidate, and collaborators).

As always, summer at YMF was full of activity. The nine students who participated in the 2023 Ingalls Field Ecology Internship at YMF worked on five different projects. One team worked on Marlyse Duguid and Mark Ashton's long-term forest monitoring studies, following the footsteps of generations of research techs to locate and measure the oak seedlings Ashton has tracked for decades of his oak cohort study. The 2023 Ashton and Duguid interns thereby completed what has become a de facto annual rite of passage for Yale Forests silviculture research. Other teams studied extinction events in wood frogs (with Logan Billet, PhD candidate) investigated how to measure

soil carbon in forests (with Michael Culbertson '24 MFS, incoming PhD), and tracked methane in trees and soils (with Jonathan Gewirtzman, PhD candidate). Beyond the daily grind of collecting biophysical data, interns also enjoyed the usual highlights (lake swims, ice cream, camaraderie) and lowlights (ticks, mosquitos, wet socks) of a summer spent living and working at YMF.


In the evenings, we hosted the annual YMF summer seminar series. Annise Dobson kicked off the summer by talking with us about jumping worms: invasive earthworms now found throughout the region, including at Yale Forests. Among the notable take-aways: the spread of jumping worms across long distances appears to be almost entirely driven by humans, offering hope that through vigilance in not moving infested mulch, soil, and plant material, we can stop the spread.

Robert Marra of the Connecticut Agricultural Experiment Station joined the series to discuss beech leaf disease (BLD). Marra outlined what is currently known about the disease's spread and origin, linked to a nematode that lives in and feeds on the beech tree buds, including both our native American beech and ornamental European beech. BLD causes deformed

leaves, early leaf drop, twig and branch dieback, and eventually kills trees entirely. To control it, there are a few individual tree-scale treatments but still no known landscape-scale treatments or effective preventative measures.

Jess Wikle '18 MFS of University of Vermont discussed different forest management strategies to help forests adapt to climate change and new pests and pathogens. Wikle's research, which she conducted in northern forests in New Hampshire and Minnesota, found that different types of climate adaptation-oriented harvest treatments had varying impacts on forest structure and the species composition of canopy tree regeneration.

Finally, William Weinberg '22 MFS closed out the summer with a presentation on his research into silvopasture systems—wherein trees are integrated on pastures—and their positive impact on soil carbon storage.

We hope to see you at YMF this summer for the 2024 seminar series. See below for the list of dates and topics! 

### Summer Research Seminars 2024:

Alternating Wednesdays, Yale-Myers Forest Camp

Join us at 6pm for socializing and light snacks. Seminars begin at 6:30pm.

**June 12:** Restoring Old Growth Characteristics.

Paul Catanzaro, Associate Professor & State Extension Forester, UMASS Amherst

**June 26:** Healthy Bugs, Healthy Streams

Jean Pillo, CPESC

**July 10:** Acornocopia: Sixteen years of plethora and paucity in a Connecticut oak masting study.

Joseph "J.P." Barsky, Research Forester, CT Agricultural Experiment Station

**July 24:** Adapting Adaptive Silviculture to the Exurban Landscape.

Amanda Bunce, Research Assistant, Dept. of Natural Resources & Environment, UCONN



## Four Seasons at Yale-Myers

Grace Bachmann '23 MF, Forest Manager

The first week of May, the forest finally burst into verdant spring, trading its quiet winter greys and browns for saturated yellows and greens from the forest floor to the canopy. The return of a familiar cacophony—thanks to peepers, birds, and insects—means that I endured all four seasons full-time at Yale-Myers Forest (YMF). Our beloved forest has seen me transition from apprentice forester on the 2023 forest crew to Forest Manager, and each season imparted its teachings.

### Summer

After graduating in May 2023, I joined forest crew as an apprentice along with eight others for a self-governed summer, as former Forest Manager Matt Valido '21 MF had departed for his next adventure. Mark Ashton and Joe Orefice will surely remember our crew its unrivaled dry humor, undeterred spirit in the face of many rejected timber sale names, and uncanny ability to turn any task into a slapstick comedy sketch. The Curtis Division was ours to explore, a privilege we share with Marlyse Duguid and her crew. Landmarks like Branch Brook, Walker Road, Axe Factory Farm, Twin Bridges, and Walker Mountain became fixtures of conversation as we deliberated on which stands to manage. Ultimately, we marked three thinning and shelterwood treatments compatible with the abundant wetland and research areas that dot the division. At Yale-Toumey Forest in Keene, NH,

the Base Hill and Humane Society Divisions tested our endurance and lent new meaning to “live free or die,” but nothing that could not be cured by the catharsis of a final DIY karaoke session in the infamous Toumey House.

### Fall

Students visited YMF with the “Field Skills and Management Plans for Protected Areas” course among other field trips and retreats, but camp still felt too quiet. So, the Harvest Festival, making its first return since COVID began, injected the whimsical fun that I long admired from the stories of foresters past. We learned the deception of the crosscut saw, that the logs for the pulpwood toss contest should indeed be pulpwood (and seasoned), and that the chicken clucking and rooster calling competition are a must. And we could not have successfully smoked the hundred pound pig without the help of neighbor Rich Dezso. Rounding out the autumn season, I guided 23 students on the fall forestry field trip to the Adirondacks and taking to the forest with YSE lecturers Amy Vedder and Bill Weber, Sally Bogdanovich '99 MF at Paul Smiths College, Lyme Adirondack Forest Company, and more.

### Winter

Short days and long shadows meant concerted forays down the forest roads by whatever means necessary—a pair of found snow shoes and thrifted cross

country skis were favorites when we had enough snow. On more frequent muddy days, I donned XTRATUFF® boots to meet forester and logger Josh Miller and trouble shoot skidding routes at “Hall and Oaks” on Scranton Road. Or I headed down to the sugar shack to check maple sap levels—fortunately our tanks had just enough capacity on high production days. When the maple team had fired up the evaporator to make maple syrup, I joined to fill the woodstove and bottle syrup always with a jar of pickles in hand—I’m told it is a New England tradition to eat pickles to balance the sweetness when sampling syrup.

### Spring

When wild leeks, or ramps, popped up in the old sugar maple grove near the Morse homestead, we made ramp butter to celebrate their return and the promise of light and warmth. That promise rang true when we were able to conduct prescribed burns two days in a row on the Red Front Meadow and Homestead. Students from Joe Orefice’s “Forest Operations and Management” course joined, as well as assistant forest managers Nate McMullen '25 MF and Tashi '25 MF, and Mary Katherine DeWane '24 MF/MBA. We plan to end spring with a draft-powered logging and sawmill demonstration in June. We welcome you to join us and find out what local oxen and horses can do! 🌿



Left: The 2023 forest crew is all smiles upon receiving their rite-of-passage suspenders. Photo: Mark Ashton. Right: Students lined up to enter the pulpwood toss competition at the Harvest Festival held at YMF. Photo: Cloe Poisson.



# From all of us at Yale Forests, thank you for your support!

Faculty Director: Mark S. Ashton '85 MF, '90 PhD

Director of Forest and Agricultural Operations: Joe Orefice '09 MF

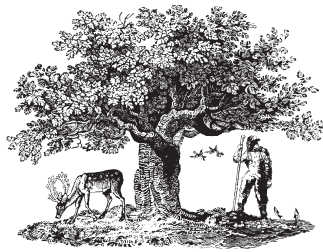
Director of Forest Research: Marlyse Duguid '10 MF, '16 PhD

Research and Extension Forester: Laura Green '18 MF

Yale-Myers Facilities Manager: George French

Forest Manager: Grace Bachmann '23 MF

Research and Extension Fellow: Shaylyn Austin '23 MF



Left: Fredrick Addai '23 MF knows the satisfaction of chapping up and getting work done. Photo: Grace Bachmann

Right: Chirchomri Khayi '23 MF refreshes a corner boundary tree on the Curtis Division. Photo: Grace Bachmann

Bottom: The YMF bathhouse renovation will make camp a more inclusive place. Photo: Grace Bachmann

