YALE FORESTS NEWS

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Yale School of Forestry & Environmental Studies

2019 Annual Report

Joe Orefice, Director of Forest & Agricultural Operations, Yale Forests, MF '09
Mark Ashton, Faculty Director, Yale Forests, MF '85, PhD '90

The year behind

The Forest Crew presents Dr. Ashton with a fresh pair of his favorite kicks

Succession and growth define our forests and the past year at the Yale School Forests was witness to much of both. The 2019 summer for Yale forestry began in the far away land of Bavaria. Jess Wikle and Joe Orefice accompanied a group of 12 Yale Masters students on a week-long forestry course hosted by Professor Ralf Moshammer of the Technical University of Munich (TUM). Yale students, and 10 TUM students, experienced the history, ecology, and practices of forestry in the Bavarian Alps. Apple strudel was found, beer was tasted, felt hats were coveted. Students quickly learned that late spring in the Alps can mean a week of cold, wet snow but none complained and spirits were high.

Our summer forest apprenticeship program (affectionately "forest crew") continued on as a popular way for students to learn on-the-ground forestry. We were able to accept 9 students to be on the 2019 forest crew. The crew quickly adopted a Middle-Earth theme for their forest community and their wanderings through mountain laurel and along old town roads in the Turkey Hill Division. Student researchers and our undergraduate field ecology program (led by post graduate research coordinator Laura Green) rounded off camp use to over 25 people and all were kept well-fed by the talented camp cook Javier Gonzalez (MEM '19). Researchers continued to produce with new projects and publications in peer review journals (see the school forest website for a complete list). Under the leadership of Dr. Marlyse Duguid and coordinated by Laura we organized the summer research seminar which continued to be a great success (see Research News and Notes).

Frank Cervo (MF '19) joined the team in July as a post graduate fellow in the form of our new Forest Manager. He replaced Nick Olson (MF' 15). With his leadership, and the hard work of crew members, we were able to prepare 15 acres of forest for regeneration and 62 acres for

The forest crew graduates from their nappies

thinning. This accounted for 276,000 board feet of timber to be sold to support the School Forests and harvested to meet our silviculture objectives of creating early seral habitat for wildlife, and greater structural and compositional stand level heterogeneity as a resilience strategy against changing climate, invasive insects, and disease.

Frank was able to have these timber sales under contract by October, with the support of two crew members, Jess Lloyd and Reid Lewis, who stayed on into the academic year as Assistant Forest Managers. Frank also led a team for a western forestry experience during the winter academic break. Our students were graciously hosted by Tom James (MF ’08, PhD ’15) for a period of three weeks as they learned the intricacies of managing forests in America’s Pacific Northwest.

We owe a sincere thank you to Jess Wikle (MF ’18) for all of her work while in her role as a post-graduate fellow. Jess was an invaluable member of our team over the past year, ensuring that the forest crew had the information they needed to get started, leading the Germany forestry field trip, and providing a field forester’s expertise. Jess also led our Southern Forest Crew in March 2019. She and a team of 4 MF students, through the support of a generous donor, developed a regeneration assessment and continuous forest inventory system for a long-leaf pine restoration project in the Red Hills of Georgia. She oversaw the normal summer activities of the environmental movies, a host of workshops and for the first time a blue grass musical get together. Jess did all of this while carrying on all of the usual tasks of our Quiet Corner Initiative (QCI) with the landowners. We wish her a sincere thanks.

Speaking of QCI, we are thrilled to announce that Rosa Goldman MF’19 started as a post graduate fellow in the QCI role in September of 2019. Rosa hit the ground running over the past year hosting workshops for landowners and bringing the science of climate change to rural communities. She has also been working with local schools to expand our outreach efforts to a broader audience. QCI also expanded into agricultural education over the past year, prompted by a silvopasture 101 workshop attended by 50 farmers and extension professionals in August. Rosa is working on a pasture soil health and carbon building workshop for this coming year.

The year ahead

The year ahead is bound to face some challenges but we are encouraged that the educational and research mission of the Yale School Forests will go on. COVID-19 has thrown schedules for a loop and we adapting our summer programing accordingly. Sadly, this meant that our 2 week trip to Germany with TUM was bumped to 2021. However, interest in our summer forest

apprenticeship is booming and we have a great crop of incoming forestry students, so we are encouraged.

Emerald ash borer (EAB) has finally found its way to Yale-Myers Forest. We found distinct signs of this invasive alien insect on white ash in our Turkey Hill Division. It is a stark reminder of the damage that can be done to forests and trees. Our approach at this time is diversified: 1. We plan to leave much of the ash on our forest in an effort to allow any resistance to persist 2. We will pre-salvage ash only in areas where we have a treatment planned for broader silviculture objectives 3. We will provide opportunities for ash to regenerate in hope that biocontrol predatory wasps being tested now will allow these seedlings to grow up in a more balanced relationship with EAB. We are hopeful that ash will remain a long-term component of our forests.

Dr. Orefice leans on a legacy of historical land use as he gives a stump speech to some MODsters

Not all is doom and gloom however. Connecticut is getting over a gypsy moth outbreak which led to significant oak loss, yet our forests seemed to have resisted the pest this time – something we attribute, in part, to maintaining a greater species diversity and age class distribution on our lands. Our school forests are seeing ever greater interest in use within and outside Yale. Our fall schedule is full with student groups and courses. Faculty this spring are using the forest as a platform for online learning, and if you look quick you might see some forestry faculty running around the woods talking to ourselves with Go-Pro cameras strapped to our heads and selfie-sticks in hand.

Amidst the challenges society is facing, the forest continues on; the buds are swelling, geese are honking, frogs are congregating, and the woodcock are voicing the strange squawk they find so romantic. Many people are getting out on the trails and finding the woods a place for recovery from an isolated, and online, world. A small hope we have is that this trying time will bring more people in connection with nature, and a greater hope we have is that everyone reading this stays healthy and well.

Prescribed Fire At Yale-Myers Forest

Elizabeth Himschoot, MEM '21

MF student Peter Aldinger watches for spot fires

While some students might think spring break is for late mornings and relaxation, some opportunities are too good to pass up when they present themselves, even with an early morning start. Prescribed burns are weather-dependent and can be difficult for students to attend during the normal academic calendar. So, after a short, early morning drive to the Yale Meyers Forest, our team of student volunteers strapped water tanks to our backs and completed a thorough safety briefing. Under the direction of trained professionals, we then slowly ignited a meadow, contributing to its nutrient cycling and habitat diversity while selectively managing for oak and hickory regeneration.

As with all prescribed fires, the morning started by gathering supplies and doing a site check to ensure the safety of burn participants and the surrounding forest systems. Under the supervision and instruction of Dr. Joe Orefice, the Director of Forest and Agricultural Operations at Yale, and Stephen Prinn, the Yale Meyers Forest Caretaker, we completed a test burn on an old homestead within the Forest. This test burn was useful in helping all the students learn and review the steps in preparing for and managing prescribed fires. It also helped us see how the fire would behave under the weather conditions that day.

Prescribed fire in action

Soon we were working side by side marking a control line around the prescribed area by scraping the organic matter that could be used as fire fuel and creating a line of barren ground. Using a back-burning fire, a fire that will burn into the prevailing wind, we expanded our control line to reduce the risk of spot fires on un-prescribed land. Once the back-burning fire was ignited we slowly

moved across the field lighting heading fires which moved in the direction of the wind and would increase the speed of the back burn as the heat drew it in. All of which was advised and narrated by Dr. Orefice who provided us information on safety, ecology, and land history as the fire crept along until the whole meadow was covered in a thin layer of ash.

While this was not something I had planned to do during my time at F&ES, it was a truly humbling experience. I was awarded a glimpse into the living history and knowledge inherent in planning and implementing a prescribed burn. For thousands of years Native Americans used fire to help create the diverse mosaic of forest, grassland, and meadow ecosystems that we see today. Now, Foresters all over the country, including in National Parks, use prescribed fires to maintain high value ecosystems and habitats.

Fire can be scary, dangerous, and full of destruction, but it can also spark new life by germinating seeds and releasing key nutrients back into the soil. In a few months you won't be able to tell there was ever a fire, but the enriched habitat and species diversity will be there to tell the tale.

Forest Management News

Frank Cervo, Forest Manager, MF '19

Hello School Forests alumni, friends, family, and supporters! My name is Frank Cervo and I am the current Forest Manager. I took over for Nick Olson this past July, after he traded in the green van for a team of horses to manage forests in his beloved home in southern Colorado. Nick was an incredible role model for me, and I have done my best to follow the example he set - I'll let y'all be the judges here as I review the past year's management activity!

This year's forest crew took to the Turkey Hill Division. Located in the southwest corner of Yale-Myers Forest, this beautiful division takes its name from the slope which rises out of the southern side of Boston Hollow. Though its topography is gentle relative to the rest of Yale-

Joe Orefice demonstrates cable skidding

Summer residents at the YMF camp explore the treehouse

Students learn how to disarm a springpole

Myers, there is no shortage of the steep ridgelines, deep valleys, drumlins, and wetlands which are typical in northeast Connecticut. You may also know it as the home of the old stagecoach road (Westford Road), the old axe factory, and Mike Ferrucci's infamous forest operations puzzle, Spooner Hill. For the first half of the summer, the crew put their skills to the test marking boundaries, digging waterbars, designing a sampling protocol, and analyzing inventory data, under the leadership of Joe Orefice and Jess Wikle, and with a healthy dose of guidance/mockery from Dr. Ashton. The flight team kept things at a stable cruising altitude, with the crew free to move about the division.

When I joined the team on July 1st, it was time to start marking timber. After thorough discussion of the inventory results and current conditions in the division, the crew prescribed a crown thinning and took to the field, paint guns loaded and pencils sharpened, to mark some trees. This treatment came to be known as Small Fry Flies Again, after the crew discovered that the stand was last treated in the 1980s by a bright eyed, bushy tailed Master's student named Mark Ashton. They continued to sharpen their thinning skills with Allis' ATV Adventureland and then put them to the test on more complex topography in The Ultimate Faux Pas. The latter crown thinning is bisected by the popular blue-blazed Nipmuck trail, which presented both an operational challenge and an outreach opportunity.

With the paint barely dry in the thinnings, it was time to take another look at the inventory data and see if there was an opportunity for regeneration. By this point, emboldened by three successful crown thinnings and copious amounts of yellow jacket venom, the crew was ready for a challenge. It came in the form of Jabba The Cut and the adjacent Thincess Leia. Tucked away in the southern reaches of the forest, these 14.7 acres are a series of islands in the sea of wetlands adjacent to Bigelow Brook. The crew found a way to access all of the applicable areas and laid out the first treatment of a shelterwood system, paired with another small crown thinning.

When the calendar turned to August, it was time for the crew to head north to the Yale-Toumey Forest and try their hands at management in the Granite State. What came of their two weeks there, in addition to fresh white boundary blazes and a robust inventory, was the 19.7-acre Best Friends. This treatment is also a crown thinning, this time in a mixed red and white pine stand, with the goal of increasing structural heterogeneity, species diversity, and resilience.

The summer wound down and turned, as always, to fall, which saw an uptick in logging operations at Yale-Myers. Hull Forest Products had purchased the 2018 crew's Princess Sophia's Rainbow Fusilli & A Tribe Called Queen – this sale was logged in November and December of 2019 by Zach and Alex Jordan. Tom Walker was also busy this fall, when he finished work on two shelterwood establishment treatments marked by the 2016 crew – Rhythm Of My Heart & State of Denali. The last log loads from those two sales also contained a few stems from Make Texas Great Again, the second entry in Yale-Myers' largest selection system, the mammoth, 80-acre Bigger Than Texas.

Forest crew keeps spirits high on a rainy day in the woods

The Yale-Myers camp was also busy this fall. Many courses and student groups from around the university held events at the camp, ranging from half-day field trips to weekend retreats. We also had overnight visits and field tours from students at Juniata College and Paul Smith's College. Tri-Lox Workshop & Millworks in Brooklyn also hosted their inaugural Fieldworks summit, which brought people from the design and architecture community to the forest to learn about where wood comes from. This builds on our ongoing partnership with Tri-Lox, aimed at strengthening the regional forest products economy and finding new ways to utilize our resources.

Participants in the Fieldworks summit, hosted by Tri-Lox at Yale-Myers, learn about forest management during a field tour

Fall turned to winter, the ground froze and unfroze, the snow fell and melted, and the loggers stayed busy. Connecticut Mulch Distributors purchased Jabba The Cut & Thincess Leia and they got right to work, finishing up logging operations there before the end of 2019. We also welcomed another new logger, Brad Cordtsen, to the forest to work on The Ultimate Faux Pas. Brad and his crew did great work on this job and are queued up to cut Small Fry Flies Again & Allis' ATV Adventureland this spring/summer as well.

It's certainly been a busy year for the School Forests, and we can only hope that the coming months will yield as much opportunity. We know that in the forest, disturbance is not an enemy to fight off but a constant force to work with, adapt to, and respect. Current circumstances give us a chance to apply these same principles to our daily lives; I hope we all continue to respond positively, build connections, and grow stronger with an eye towards the future.

The Western Washington Woods Are Lovely Dark And Deep

Michael Storace, MF ‘20

Oh, winter in the Pacific Northwest…where the trees grow quick and tall and the sun eludes our eyes for days on end. A group of five budding foresters were given the opportunity in late December/early January to discover everything that the damp, dark, and deep evergreen forests of Western Washington have to offer and to learn what strategies foresters utilize to manage trees in America’s temperate rain forest. We wandered through the largest trees that I had ever seen, found ourselves up to our waists in evergreen huckleberry, and learned the varying ways that people value these majestic forests.

The Olympic Peninsula was forged by bizarre geological circumstances featuring active tectonic plates and a relatively recent glaciation. The resulting topographic and soil structure paved the way for the lush forests we see today, governed by the orographic influence of the Olympic Range. This perpetual rain, on the dry side mind you, also served as the backdrop for our internship. We were welcomed to the region and the Hama Hama Company by Tom James (MFS ’08, PhD, ‘16), Kendra James (MF ’12) and their lovely family (including Basin the Dog). Our gracious hosts got us settled in a cozy cabin complete with a luxurious loft and exquisite view (before 4:30 pm of course) of the black rainbow arch bridge over the Hamma Hamma River. We were flanked to the east by the narrow Hood Canal (not a human-formed canal, but a glacially forged fjord) and just two miles further by the Kitsap Peninsula. The Hama Hama Co. has been in Tom’s family for several generations and manages the forest as a long term investment. It has more recently expanded its operations to include aquaculture, which features the harvesting of blue pool oysters that grow in the waters of the Hood Canal.

The Western Forest Crew stops to enjoy the view at a recent clearcut

We quickly learned that the eastern side of the mountains is indeed the drier side, and that, incomprehensibly to us, moisture is the limiting factor of these forests. Here the Douglas Fir (Pseudotsuga menziesii) reigns supreme. This quick growing tree thrives on drier soils, welcomes sunlight, and pervades the eastern rain shadow of the Olympic Mountains. Although it can often be outcompeted in later successional stages, especially on the moister western side of the Peninsula, by Western red cedar (Thuja plicata), Western Hemlock

(Tsuga heterophylla), and Sitka Spruce (Picea sitchensis), Douglas fir is the prized tree for most resource managers in the Pacific Northwest.

The western crew collects data for a future skid road with the Washington Department of Natural Resources

It was at this early stage of our visit that we were introduced to plantation style forestry. In this revenue driven model, even-aged management is the dominant strategy that leads to short rotations, planted seedlings, and the absence of natural regeneration. The mechanized nature of this style of forestry is a streamlined Ponsse scheme. These impressive machines can efficiently complete every task, including harvesting trees, hauling them out of the woods, and placing them into the appropriate piles. We came to appreciate the aesthetics of planted forest stands, many of which were shown to us by our new friends at Green Diamond Resource Company, Manke Lumber Company, and the Washington Department of Natural Resources. But we couldn't help but think about the potential long-term implications of intensive management. What are the impacts on soil health? Was this system resilient to some sort of disease or pathogen, such as more pervasive root rot? For now, short rotations of Douglas Fir make the most sense for many resource managers in Western Washington, especially when revenue is the primary management goal.

In our free time, we traversed pockets of old growth in the Olympic National Park. Staggering trees loomed eerily through the descended fog and gazed downwards on their fallen siblings. Here we witnessed mosses draped from every crevice, especially along bigleaf maples (Acer macrophyllum). We noticed trees on stilts and seedings in every conceivable location, from atop logs that had died years ago to shaded spots that had never seen the light. It was here that I, with my Ashton tinted lenses, lamented the loss of natural regeneration. If we plant exactly the tree that we want, where is there room for the nurse logs and the glorious Western Red Cedar, prized by many indigenous people for its rot resistant and pliable properties. A jaunt to the Western side of the Olympic Peninsula offered a dense and majestic shield of Sitka Spruce which reluctantly gave way to the mighty Pacific Ocean. Mesmerized by its undulating patterns and hypnotic spray, the foresters briefly abandoned their forested passions and gazed longingly at the rugged Washington coast and its marriage to the sea.

However, despite the prevalence of intensive plantation management, there was some semblance of ecological and community forestry in the Olympic Peninsula. We met with the Northwest Natural Resources Group who work with smaller landowners in the region to gain Forest Stewardship Council (FSC) certification, to write management plans, and to manage on longer rotations towards later successional conditions. We also learned from the Jefferson Land Trust about their initiatives to develop a community forest and a working forest conservation

easement on a parcel to maintain ecological values of an uneven aged forest and social values of the community of Chimacum.

It was with these varying perspectives of forest management that we returned to Hama Hama Company to apply our new knowledge on the forest. The interesting geology of the Olympic Peninsula made many areas of the region vulnerable to landslides and other earth movements. We found ourselves at the top of an unstable feature, termed a Class 4 special by the Washington DNR, trying to prescribe a treatment that would reduce groundwater infiltration below the feature and ultimately reduce the potential for delivery of sediment to other water features. We deduced a plan in which Tom could apply expanding gaps to minimize the amount of area harvested at one time. It was with thoughts of harvesting oysters under the full moon that we said our moist farewell of the Olympic Peninsula to return to the land of naturally regenerated mixed hardwoods back east.

Research News And Notes

Laura Green, Naturalist Program Fellow and Research Manager, MF '18

Wood frogs, native bees, and thousands of trees – these were just a few of the things queried, counted, and celebrated by research at the School Forests in 2019! The past year saw the beginning of a number of new research projects from scientists at Yale and beyond, while other project came to successful conclusion and researchers moved on to new pastures and post-doc positions. Curious to learn more about the research program? Visit us online at http://forest.yale.edu/research

Field Ecology interns hard at work in the ForestGEO Plot

Kohlberg-Donohoe Research Fellowship

The Kohlberg-Donohoe Research Fellowship, which was in its third year in 2019, makes competitive research grants to Yale University students who are conducting research at any of the School Forest properties. The fellowship awarded five students in 2019 – two Yale College undergraduates, one MESc 5-year student, and two F&ES doctoral students. Three fellows - Kaija Gahm (YC 2020), Paige Johnson (YC 2020), and Ella Schmidt (MESc 2020) – took to the vernal pools to study amphibians. Kaija studied possible trade-offs between growth rate and metabolism

in developing wood frogs, while Paige looked at difference between ponds in rural and suburban settings, and Ella expanded on work she began at Yale-Myers in 2017 to untangle the impacts of genetics and environment on wood frog development and growth. The remaining two fellows, David Woodbury (MFS 2019 and F&ES PhD student) and Eli Ward (MFS 2018 and F&ES PhD student), took to the trees and the soil, respectively. David took on the mantle of continuing the collection of baseline canopy data for the new ForestGEO permanent census plot, and Eli began her doctoral research examining the impacts of forest disturbance and understory plant invasions on soil nutrient cycling in recently harvested forest stands.

Two of the 2018 fellows also returned to the forest to share about the outcomes of their research as part of the 2019 Summer Seminar Series. A.Z. Andis Arietta dug into his work on wood frog adaptation to environmental conditions and considered the implications for frogs' future under climate change, and Laura Ostrowsky explored red maple's unique ability to thrive under almost any conditions in our forests.

The Louise H. and David S. Ingalls Field Ecology Program

In 2019, six undergraduate students ranging from rising sophomores to rising seniors spent eight weeks living and working at Yale-Myers Forest. The Ingalls Field Ecology Program gives undergraduate students a chance to dig into field ecology research by participating in ongoing research projects. Under the guidance of several different faculty and graduate student researchers, students get meaningful experience collecting ecological data, and forge connections with fellow students and ecology mentors.

Robert Buchkowski discusses field research with quiet corner residents

After an orientation to the highest highs (mastering tree ID! matching hats!) and the lowest lows (ticks! always more ticks!) of life at the forest, the 2019 crew dove into work on their projects for the summer. One team continued the work that the 2018 interns started on the ForestGEO permanent forest census plot. Under the watchful eye of Kohlberg-Donohoe fellow David Woodbury, the team collected crucial baseline inventory data about the canopy, measuring and mapping over 8,000 stems! Another team waded straight into the weeds on Dr. Joe Orefice's study of establishing tree regeneration in a sugar bush and silvopasture, battling through barberry and multiflora rose to tag and measure tree seedlings. When not stuck in the prickers, they joined the rest of the group at the mostly thorn-free ForestGEO plot to identify and quantify understory plants.

In addition to field research, the 2019 interns also participated in a variety of workshops, including field collection and identification of wild bees, reading past land use and forest disturbance history in the field, and discussions about graduate school admissions and academics with F&ES staff. The team contributed to the rich "camp life" at Yale-Myers – attending the Summer Seminar Series talks from visiting researchers on Wednesday evenings, introducing their research projects to visiting students from New Haven interning at other parts of Yale, dancing their way through dish duty, sharing swimming lessons at Crystal Pond Park, and carpooling over to Buck's to enjoy a soft-serve.

Below, please find a list of research publications from 2019:

Buchkowski, R.W., Leroux, S.J. and Schmitz, O.J., 2019. Microbial and animal nutrient limitation change the distribution of nitrogen within coupled green and brown food chains. Ecology, 100(5), p.e02674.
Buchkowski, R.W., Schmitz, O.J. and Bradford, M.A., 2019. Nitrogen recycling in coupled green and brown food webs: Weak effects of herbivory and detritivory when nitrogen passes through soil. Journal of Ecology, 107(2), pp.963-976.
Benedek, K., Bálint, J., Máthé, I., Mara, G., Felföldi, T., Szabó, A., Fazakas, C., Albert, C., Buchkowski, R.W., Schmitz, O.J. and Balog, A., 2019. Linking intraspecific variation in plant chemical defense with arthropod and soil bacterial community structure and N allocation. Plant and Soil, 444(1-2), pp.383-397.
Lambert, M.R., Tran, T., Kilian, A., Ezaz, T. and Skelly, D.K., 2019. Molecular evidence for sex reversal in wild populations of green frogs (Rana clamitans). PeerJ, 7, p.e6449.
Mossman, A., Lambert, M.R., Ashton, M.S., Wikle, J. and Duguid, M.C., 2019. Two salamander species respond differently to timber harvests in a managed New England forest. PeerJ, 7, p.e7604.
Russo, N.J., Elphick, C.S., Havill, N.P. et al. 2019. Spring bird migration as a dispersal mechanism for the hemlock woolly adelgid. Biol Invasions 21, 1585–1599.
Schmitz, O.J., 2019. Predators affect competitors' coexistence through fear effects. Nature, 570(7759), p.43.
Urban, M.C., Scarpa, A., Travis, J.M. and Bocedi, G., 2019. Maladapted prey subsidize predators and facilitate range expansion. The American Naturalist, 194(4), pp.590-612.
Wikle, J., Duguid, M. and Ashton, M.S., 2019. Legacy forest structures in irregular shelterwoods differentially affect regeneration in a temperate hardwood forest. Forest Ecology and Management, 454, p.117650
VanAcker, M.C., Lambert, M.R., Schmitz, O.J. and Skelly, D.K., 2019. Suburbanization Increases Echinostome Infection in Green Frogs and Snails. EcoHealth, 16(2), pp.235-247.

Forest Crew 2019

Reid H. Lewis, MF '20

The resident camp dogs enjoying a beautiful summer day

This summer, nine students came to the Yale-Myers Forest to learn firsthand what it means to practice sustainable forestry. These nine were the most recent group of a long line of foresters who come to YMF to sleep in bunks and wield paint guns: the Apprentice Forester Program at the Yale School of Forestry and Environmental Studies. The Forest Crew of 2019 had the great fortune of calling Becca Clarke, Jenny Katz, Thomas Launer, Reid Lewis, Jess Lloyd, Ki'ila Salas, Sara Santiago, Jack Singer, and Rob Turnbull its members. Hailing from across the northwestern quarter of the world, the 2019 Crew began making Camp their home in late May. Hammocks sprung up between beams while plans for gardens began to take shape. Soon we were joined by Forest Ecology interns, researchers, and our wonderful chef Javier Gonzalez. Books on the to-read list were finally opened, and everyone entered the long political drama of winning the dogs' affections.

Before we knew it, the weeks were filled with lectures, workshops, and long days in the rain. We learned how to fell a tree with a chainsaw and, with apologies to your suspension, to dig waterbars in the road. We learned to call the Turkey Hill division home as we acquainted ourselves with its valleys, turns, and boundaries.

With roads and boundaries in tip-top shape, Frank Cervo, Joe Orefice, Jess Wikle, and Mark Ashton began to show us the foundations of sustainable forestry: the 'Science of Place'. First, lie down in soil pits to feel their texture and moisture. Then, bury your nose in a book to go back thousands of years into the land history. Laura Green helped us with the next step: let the region's plants tell you where you stand. Our own Rob Turnbull (Turner, in some circles) led the next topic, a rapid-fire tour of birds and bird homes in the region.

With these ecological basics under our belt, it was time to go out and see where in the forest we should treat. We quickly came to realize that finding the right stand in a 1,000-acre division was no easy task; we sampled the Turkey Hill division for an entire week before deciding the proper place to conduct a treatment. Once we learned the finer strokes of silviculture (thinning and regeneration treatments) from Dr. Ashton, it was time to grab our brushes paint guns and leave our mark.

The forest crew sports their new outfits

By the end of the summer, we had marked six prescriptions, four sales, 348,000 board feet, and over 2,000 trees. The summer, however, was much more than timber values on a spreadsheet. It was a summer of rain in the mountain laurel, soft serve in a mug, and TEDx talks in the library. Sometimes it was a summer of joy and laughter; sometimes of exhaustion and stress. We came to the forest to learn and practice sustainable forestry, and we succeeded - our marks have been left on the landscape. Some of these marks are blue and yellow; a willing upon the forest by our paint-gunned hands. Others are far more subtle: a book added to the library; a rock beside the fire; crushed leaves on a forest road; or turned rocks in a swimming hole. Be it paint on a tree or a redirected north arrow, we hope our legacy will be a good one.

News From The Quiet Corner

Rosa Goldman, Quiet Corner Initiative Manager, MF '19

The Quiet Corner Initiative continued to grow and connect with landowners in new ways throughout 2019 – but not without some changes. In late summer, we said goodbye to our first full-time QCI Manager, Jess Wikle (MFS '18), as she headed off to pursue a Ph.D. at the University of Vermont. I stepped in to fill the role in September.

Emily Sigman, MF '18, leads a mycology tour during the annual Harvest Festival

QCI embarked upon a new series of programming in 2019, aimed at bringing the latest in climate change science and policy from New Haven to the Quiet Corner. We started off this series with a Town Hall Seminar in Climate Change Science in February, featuring F&ES professors Mark Bradford, Xuhui Lee, and Peter Raymond. Another Town Hall event in October featured former Connecticut DEEP Commissioner Robert Klee, who shared some of his expertise on the role of

Sam Rich leads the horse logging demonstration

state-based solutions in combatting climate change. In November, Mark Ashton led a field workshop on Forest Management in a Changing Climate, helping to equip Quiet Corner residents to better manage their own woodlands with resiliency and future climatic conditions in mind.

We hosted some familiar programming in 2019 as well. The year began with the much-anticipated return of QCI's Horse Logging and Portable Sawmill demonstration in February. Sam Rich of We-Lik-It Farm gave demonstrations with his draft horses Molly and Maude, Denis Day showed participants how he uses his portable sawmill to mill logs into boards, and then everyone got to make their own box using those freshly-milled boards. In September, our annual Harvest Festival at Yale-Myers Forest Camp was once again a success! Quiet Corner residents and F&ES students alike shared a delicious potluck meal, pressed Buell's apples into cider, took a mushroom-identification walk, learned about honey extraction from neighbor Rich Dezso, and took in a wonderful performance by Yale College's Tangled Up In Blue.

As always, we had an all-star lineup of Summer Seminar presenters, beginning with a talk on the history, ecology and conservation of Wolf Trees by naturalist Michael Gaige. Kass Urban-Mead (MESc '16) taught us about the canopy bees that pollinate our forests, and A. Andis (Ph.D. '21) gave a lecture on what frogs can teach us about evolutionary adaptation and climate change. Laura Ostrowsky (MFS '19) rounded out the seminar series with her take on the Red Maple Paradox and that tree's successful regeneration in Connecticut's forests. We also continued to bring EFFY to the Quiet Corner, screening three environmental films throughout the summer: Food Inc., Plastic Paradise, and King Corn.

Joe Orefice tends to his cows at Hidden Blossom Farm

The lineup of summer workshops also included background on the soils, geology, land use history, and breeding birds of the Quiet Corner, led by Mark Ashton for both our neighbors and our Forest Crew. Eileen Fielding and Carrie Folsom-O'Keefe of Connecticut Audubon expanded

on our bird-focused workshops by offering a Foresters for the Birds workshop at Yale-Myers in June. In August, Joe Orefice rounded out QCI's summer programming with a Silvopasture workshop hosted at his farm, Hidden Blossom Farm in Union.

Dr. Ashton teaches students in the Management Plans for Protected Areas course to search for new perspectives during their site visits

The Quiet Corner Initiative also continued engaging with several courses at F&ES to link landowners and students. In the spring of 2019, students in Forest Operations completed two harvest plans for Quiet Corner landowners. In the fall, students prepared management plans for 7 landowners across nearly 400 acres, bringing our total number of management plans to 50 since beginning the Woodland Partnership in 2011! Overall, student management plans have covered almost 4,300 acres of land surrounding Yale-Myers Forest.