UNCHARTED TERRITORY
A new dean, new academic facilities, and new challenges to navigate.
As I begin my first year as the Cheryl Ramberg-Ford and Allyn C. Ford Dean of the Oregon State University College of Forestry, I write this letter with excitement and anticipation.

Our world faces numerous challenges brought on by the COVID-19 pandemic and our growing sustainability and climate crises. Despite the tough road ahead, I came to OSU with the knowledge it is a place that commits itself to solving some of society’s most significant problems.

I feel honored and exceptionally fortunate to have the opportunity to lead this dedicated team of faculty, students, and staff who consistently use science and education to address climate change and the needs of an increasing global population.

I am fortunate to start my new position when the college is in a strong position for future success. Accordingly, I would like to recognize Anthony S. Davis for his service to the college as Interim Dean during a difficult period. From the tragic passing of Thomas Maness, seeing the Oregon Forest Science Complex through to completion, and managing the college during a global pandemic, Anthony kept the college moving and advancing on multiple fronts.

This issue of Focus on Forestry highlights some of those accomplishments. This edition underscores how we as a college strive for research innovation, meaningful educational opportunities, and pledge to advance society by finding solutions to our most complicated questions. We do this work with a commitment to diversity, equity, and inclusion, helping create a more just society for all.

I am thrilled to be serving in my new role with the college. Throughout my time in the position, I will advocate that society can and should embrace science to inform decisions while recognizing the multiple values forest landscapes and ecosystems provide.

I also look forward to working with you and the rest of our incredible alumni to help identify and address the challenges ahead, ensuring the college remains an internationally-recognized education, research, and outreach leader for managing and sustaining our forest landscapes.

I hope you enjoy this issue of Focus on Forestry, and I look forward to our paths crossing soon.

Stay healthy and happy. Sincerely,

Tom DeLuca
Cheryl Ramberg-Ford and Allyn C. Ford Dean
Oregon State College of Forestry
Focus is published by the Oregon State College of Forestry. Our goal is to keep our alumni, friends, faculty, staff and students informed about the college and its many events, activities and programs.

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As a forest social scientist, Tom DeLuca has worked in Sweden, the United Kingdom, China, the Rocky Mountains and other far-flung places. He has focused on elemental, environmental and silvicultural cycles that link forest productivity to the soil ecosystem and human activity. He has served in leadership positions at Bangor University in the U.K., the University of Washington and University of Montana.

But when the chance came to advance the legacy of his friend and colleague Thomas Maness and direct one of the world’s leading forestry programs, he jumped. “I’ve known Oregon State as the premier forestry program in the nation, if not the world,” says DeLuca, who succeeds Maness as the Cheryl Ramberg-Ford and Allyn C. Ford Dean of the OSU College of Forestry.

In 2012, at about the time that Maness became dean, DeLuca was hired as director of the School of Environmental and Forest Sciences at the University of Washington. “We gave talks at the same professional meetings, hit it off and became friends.”

DeLuca says he and Maness shared similar perspectives about the future of forestry. “Thomas started things in motion as dean that I’m excited to pick up and advance. For example, if OSU becomes the steward of the Elliott State Forest, we would have a tremendous opportunity to push the limits of what sustainable forest management looks like on the landscape. How can we meet our needs for fiber without degrading habitat?

“I see forestry as a key element of a sustainable future on Earth. Our survival as a species ties directly to forests and all of the attributes that we depend on — whether it’s clean water, air, forest products or diversity of species.”
As a boy growing up in Madison, Wisconsin, DeLuca enjoyed spending time outdoors. His family dabbled in farming and he learned about the value of early mornings and the self-sufficiency demanded by agricultural work. They made frequent backpacking trips to the forests of Idaho and Montana. His strong connection to the woods and the West motivates him today.

“I spend as much time outdoors as I can. I love to be in the woods. I do a fair amount of trail running, skiing and cycling,” he says. As young parents, he and his wife Denise took their three sons Vince, Emile and Henry on outdoor excursions nearly every weekend to instill that same love of the land.

DeLuca has a fondness for books about the land and people pushing their limits — whether physical, emotional or mental. He also enjoys a wide variety of music. However, when it comes to personal accomplishments, he reflects on his own family with gratitude and happiness: “Raising those three boys is probably the best thing I can point to in my life to date.”

It follows that DeLuca places the College of Forestry’s educational mission at the top of his priorities. Kids growing up in urban areas often lack familiarity with rural landscapes, he says, and may associate forestry primarily with clear-cuts.

He notes, however, that in the 1890s, the science of forestry developed in response to the destructive practices of an earlier age. “Forestry was the first environmental science practiced at a landscape level in the United States. We need to reclaim that ground. We need to recapture peoples’ and kids’ imagination around forestry.”

DeLuca believes educational excellence means producing graduates who combine a deep understanding of forest ecosystems with a conservation ethic and strong communication skills.

Toward that end, DeLuca sees his leadership role as enabling faculty and students. “It’s not about me; it’s about us as a college. It’s my job to help create the conditions in which people can do their best work,” he says. “It takes systems thinking and an integration of practice to create an effective team.”

DeLuca recognizes the college has leading institutes and departments, which bring a diversity of perspectives and collaborations to the sustainability challenge. By connecting students with current research, faculty create an exceptional educational experience. Across the state, the OSU Forestry and Natural Resources Extension Program carries the learning to communities that are dealing with issues from wildfire to economic dislocation.

The college has also benefited from the leadership of Anthony S. Davis as interim dean, says DeLuca. “He seized the momentum created by Dean Maness and moved the college forward on multiple fronts, including the completion of the Oregon Forest Science Complex, exploring the creation of the Elliott State Research Forest and the establishment of the Wood Identification and Screening Center at OSU.”

In his research, DeLuca has found the enduring footprint of human activity across the world. For example, in Sweden, where he conducted field work with ecologists and archaeologists, northern forests were regarded as pristine and untouched by humans. However, the Sámi people had managed those forests and alpine tundra for millennia, just as Native peoples exerted a strong influence on forests in North America.

“We have to recognize that humans are part of the landscape,” he says. “They are and always will be.”

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FALL 2020

COLLEGE OF FORESTRY
FOCUS MAGAZINE
Like most seniors in forest engineering, Ethan Harris had a plan for his capstone project. On Starker Forests land in the Oregon Coast Range, he would survey a stand, appraise its timber value, develop a harvest plan and coordinate with mills and truckers.

But when stay-at-home and social distancing orders came down from the governor’s office in March, Harris had to change course. Timber cruises and other survey work were cancelled. Instead of meeting in person to pore over maps and review details, the project team met virtually through Zoom.

Harris’ most significant hurdle, he says, was to get over his dismay with the setback. Woodam Chung, Stewart Professor of Forest Operations, helped Harris to find available data and complete the project.

Another senior, Wade Christensen, had a similar experience for his capstone. Help arrived in the form of remotely sensed LIDAR data from a leading expert in the field, Bogdan Strimbu, assistant professor in Forest Engineering, Resources and Management. Allowing for differences between direct observation and point clouds, Christensen was able to estimate timber volumes and complete his work.

Both Harris and Christensen graduated on time, but they are only two examples of the stressful scramble brought on by pandemic restrictions last spring. Adjusting capstone projects, jumping into remote classes, recalibrating internships, filling gaps in students’ resources — all fell to faculty, advisors and support staff.

What they accomplished, says Christensen, “was monumental.”

For Nicole Kent, Manager of Advising & Academic Relations for the College of Forestry, the shift became all consuming. She and her team make sure that the college’s nearly 1,000 undergraduates get the courses and experiences they need. They also conduct student orientations and other events.

Although some students had already completed their internships, others...
Among the challenges of teaching in a remote environment, he says, are managing discussions, monitoring student performance and grading. “The biggest challenge is that, since you don’t face students one on one, you have to put in extra effort to add a personal, thoughtful touch to all correspondence.”

Stemper says a handful of people responded to his offer. One was a simple observation from Bruce Shindler, OSU professor emeritus whose environmental interpretation course provided Stemper with his first college teaching experience in 2001. “He told me that ‘you and people like you are why I enjoy working for the College of Forestry,’” says Stemper.

Throughout spring term, OSU and the college communicated with students, sending updates about available resources and helping people who were struggling with isolation. “It sounds trite,” says Stemper, “but it revealed this strong learning community that we all have. It showed a lot of collective character on the part of OSU.”
The atrium stairs (right) are made of recycled glulam beams from the former Peavy Hall.

Sensors (below) placed throughout the mass timber building monitor post-occupancy performance.

TWO NEW BUILDINGS FOR THE FUTURE OF FORESTRY

The Oregon Forest Science Complex (OFSC), primarily made and grown in Oregon, highlights an entirely new way of thinking about building and design. The complex is comprised of three buildings; Richardson Hall, the new George W. Peavy Forest Science Center (PFSC) and the new A. A. “Red” Emmerson Advanced Wood Products Laboratory (AWP). The new additions total 95,000+ square feet and are a great example of how sustainably managed forests can be used to create beautiful buildings out of wood and establish a connection with outdoor landscapes.

Thanks to the vision, support and work of former dean Thomas Maness, the leadership of former interim dean Anthony S. Davis, the State of Oregon, OSU Foundation and numerous donors, faculty, students, staff, and alumni, the complex provides a learning environment that is one of a kind.

The OFSC features innovative materials, from Accoya wood cladding to View dynamic glass windows. By utilizing these products and others, like cross-laminated timber and mass plywood panels, the project highlights how mass timber and structural wood products building solutions can increase the value of Oregon’s natural resources and enhance our communities.

Learn more: ofsc.forestry.oregonstate.edu
Learning spaces like the Starker Forests Classroom (far left) allow students to study all aspects of the forest landscape.

The main entrance to the AWP (above), which houses a state-of-the-art 60’-x-80’ strong wall and reaction floor system.
Getting out of the military after a long career of service is daunting, but thanks to Oregon State University Ecampus, Andrew Carrier, who began his military service after receiving his bachelor's degree from the University of Tennessee, had the opportunity to expand his knowledge in his chosen field of urban forestry before he stepped into civilian life.

“Online programs are much more feasible for busy active duty members,” Carrier says. “After researching numerous institutions, I found the OSU online master of natural resources and graduate certificate in urban forestry programs. I was sold on the program based on the ability to form a solid base level knowledge in urban forestry.
and then easily transition to the master’s program without having to go back and take GRE.”

The OSU graduate certificate in urban forestry prepares students to think scientifically and strategically, at a time where adult learners are looking for alternatives to in-person educational opportunities. Students learn to effectively apply the principles of urban forestry, green infrastructure, planning, policy, management and leadership to the management of urban forests and urban forestry programs.

The certificate is unique and the first of its kind offered online. Courses are delivered through OSU Ecampus – a national leader in online education. No other university in North America currently offers a graduate urban forestry education in this flexible, accessible format.

Carrier finished the certificate program last year and used the program to transition to the master’s of natural resources program. He credits his online OSU education experience in helping make him a desirable candidate in the natural resources and sustainability career fields. In February of 2020, Carrier was hired as a tree inventory technician by PlanIT Geo, a natural resources consulting firm based in Denver.

While reflecting on his experience, Carrier says he enjoyed his classes and the work of Senior Instructor Paul Ries.

“There was a really good balance in the program of academic overviews, important case studies and daily application,” Carrier says.

Ries, who helped create the certificate program, says his students are dedicated and come from a diverse set of backgrounds.

“Some, like Andrew, are transitioning into an urban forestry career, while others are already practicing urban foresters looking for advancement,” he says. “One of the most rewarding parts of my job is helping mentor these professionals and watch them grow in their careers and take on new challenges.”

Learn more: ecampus.oregonstate.edu
Assistant Professor in Forest Policy, Mindy Crandall, grew up in the Oregon Coast Range town of Otis on the edge of the Siuslaw National Forest. For recreation, she and her family camped in clear-cuts, rode dirt bikes and hiked steep trails through towering Douglas-firs.

“It was kind of my playground. There were no other kids close by. It’s the most beautiful place in the world,” she says.

And yet something nagged at her, a question that crystallized after she moved away. Why was it, she wondered, that the national forest looked so different from nearby privately-owned land?

Exploring that question led her to an undergraduate degree from the College of Forestry and a master’s and Ph.D. in Applied Economics from OSU (“I’m a triple beaver”) in 2016. While she found the biology and ecology of forests fascinating, it was the human element that captured her imagination. “It’s all about people and their interactions with forests,” she says.

Crandall moved across the country to pursue that topic in a tenure-track position at the University of Maine (before getting her graduate degrees, she had worked as a VISTA volunteer in Maine for two years). She returned to Oregon State in January 2020.

“What motivates my research is the intersection of forests, rural communities and working landscapes. That’s where my heart lies,” she says. “How can we sustain a proper forest industry, and how can rural communities survive? These are treasured places of knowledge and experience. Somehow we need to figure out a way for all these things to work together. What are some of the slam-dunk things that are going to help rural places?”

In her efforts to illuminate the social and economic systems that shape forest-based communities, Crandall has looked at the forest industry workforce, alternative uses for biomass, and the relationship between the landscape and land management decisions.

For example, in Maine, she led surveys of businesses and youth to evaluate students’ interests in developing skills that match with forest industry employer needs. Crandall’s team found that students’ skills and expectations aligned with the culture of future potential employers.

In another study, Crandall looked at the relationship between regional landscapes and forest management. Her team identified
factors such as tourism, exurban development, infrastructure, and commuting patterns that shape private landowner decisions and affect surrounding communities and landscape structure.

A project that harkens back to Crandall’s youth is “near and dear to my heart,” she says. The Rural Youth Futures Project surveyed high school students in two rural counties — Piscataquis County, Maine, and Coos County, Oregon — and was co-managed by fellow College of Forestry alumna Jessica Leahy. The goal was to evaluate the needs and opportunities facing youth growing up in rural forest-dependent communities.

“This comes out of my own experience growing up in the Coast Range, where there didn’t seem to be a lot of opportunities,” says Crandall. “We wanted to look at how kids think about the economy and the environment, how they perceived their communities, their outdoors, and whether they wanted to stay in rural areas or move away.”

An advisory committee of community leaders in both states helped to determine the questions and connect with schools. The project generated more than 2,000 survey responses. Crandall and her team found that youth have high educational aspirations and a high degree of place attachment to the outdoors. Publications are in process.

“Mindy wants to have a positive impact on rural communities that are challenged by the changes affecting forest-based economies,” says Claire Montgomery, retired chair of FERM and a forest economist. “In all my work with her, her concern for fairness and justice shines through. That passion is manifested in her research program and her commitment to programs that support diversity, equity, and inclusion.”

A prime example focuses on gender in forestry education. “When I started at OSU 20 years ago in forestry,” says Crandall, “it was about 10% women students, and it’s still about 10% women. Why have we made no progress? Female undergrads are often the only women in their classes.”

Conversations with Maine colleagues and students led to the formation of a group called Supporting Women in Forestry Today, or SWIFT. The group held social and professional events, which became places where people could get to know each other. Education, networking and strategizing for undergraduate women were its priorities. Although the pandemic has curtailed face-to-face gatherings, Crandall is considering ways to apply the lessons of SWIFT in Oregon.

In upcoming research, she is collaborating with Jeff Kline, a U.S. Forest Service economist, to study the community impacts of severe wildfire. “I loved living in Maine, but I’m happy to be back home in Oregon,” she says. “The landscape and politics of the West are so interesting — public lands, the rural landscape. It’s so fascinating. There’s so much to explore.”
If you need to estimate the value of a forest—whether a plantation of Douglas-fir or a small woodlot—experts in mensuration (aka biometricians) can give you a time-honored method. The traditional process of sampling plots, the measuring of tree heights and diameters, allows an estimation of resources at the landscape level. It works well enough; a similar process also served the ancient Romans.
However, there is a price to be paid. Measuring a small portion of the trees, say 2% to 4%, leads to uncertainty. Moreover, it is cumbersome to replicate the process for future analytical purposes.

Now Chu Qi, a graduate student in the College of Forestry’s MARS lab (Management, Algorithms, and Remote Sensing), has developed a powerful new method to dramatically reduce the uncertainties associated with capturing a forest inventory. The technique speeds up the analysis and creates a robust 3-D dataset for ongoing forest assessment.

Using terrestrial laser scanning (TLS) data from a stand in the McDonald-Dunn Forest near Corvallis, Qi and Bogdan Strimbu, Qi’s adviser and an assistant professor in Forest Engineering, Resources, and Management, created an algorithm that extracts information about forest structure.

For forest inventory purposes, “we identify what is stem and what is not stem,” says Strimbu. But the full point cloud dataset (the collection of points recorded in 3-D by a scanning device) offers a 360-degree picture of the forest environment, everything from the ground to the canopy. Consequently, it can provide details to understand the forest’s multiple aspects, such as undergrowth and canopy conditions, biodiversity and carbon storage.

“Our wanted to save on the labor of doing a forest inventory,” says Qi. “We used new technology for analyzing point cloud data. It had not been applied to a forest before. It was a challenge to separate the points for the stems from everything else in the forest. There’s a lot of ‘noise’ in the data.”

Strimbu is working with the OSU Research Office to file a patent. “The ballgame has completely changed,” he says. “If you rescan the stand in the future using the same procedure, you’ll find many of the same trees. With point clouds, you can study changes that are not measured traditionally.”

Conventional mensuration techniques dominated forestry in the 20th century. A turning point came with the advent of airborne remote sensing in the late 1970s when the Landsat program generated the first broad glimpses of forest landscapes. However, the deployment of active sensors, such as LIDAR on aircraft and land-based platforms, created the path for Qi’s and Strimbu’s innovation.

“Imagine that you have created a set of plots for conducting a conventional estimate of timber volume,” says Strimbu. It might take all day to visit each plot and create a record of tree heights and diameters. In the same time, you could walk with a TLS device that creates a continuous point cloud of the forest environment, process the data and run it through the algorithm developed by MARS to estimate volume.

“You still have a sample, but instead of being based on 2% of the trees, it would be based on 25%,” Strimbu adds.

Tests of the algorithm have shown it to have 100% “correctness,” meaning that everything identified as a tree is a tree. Moreover, the algorithm successfully found 95% of the trees.

“We have a wealth of data and need to extract information for relevant measurements,” says Strimbu. It takes a strategy to extract relevant information using traditional forest inventory. For other purposes, point clouds offer the raw data from which extra information, unplanned initially, can be later computed.

For example, if one needs to know how much coarse woody debris is in the forest, current practice calls for a cruise dedicated to this purpose. However, the same estimates can be obtained from an existing cruise that was implemented using point clouds.

The advancement is not the first to come from Strimbu’s MARS lab. He and Qi teamed up earlier to produce an algorithm that uses point cloud data for a single tree to replicate its exact shape and volume. The approach is particularly useful for calculating the optimum cutting pattern for a high-value tree.

Strimbu also has a patent on an algorithm that determines geolocations in point cloud data. Their research was supported by a grant from the US Department of Agriculture.
CLASS OF 2020 GRADUATES HONORED AT VIRTUAL CELEBRATION

Dedicated to preparing the future leaders of our working forest landscapes, the college awarded 210 undergraduate degrees and 66 graduate degrees with a virtual celebration held in June. At the celebration, three graduates were presented with awards recognizing their exceptional work during their time at Oregon State:

Anis Bel, bachelor’s degree in renewable materials, earned the Paul & Neva Dunn Outstanding Senior Award in recognition of his outstanding scholastic achievement and professional ability.

Wade Christensen, bachelor’s degree in forestry, received the Harold Bowerman Leadership Award for demonstrated leadership, outstanding contributions and enthusiastic participation in student club activities and college programs.

Tristen Guzaitis, bachelor’s degree in forestry, received the Kelly Axe Award for tirelessly supporting professors, fellow students, clubs and college projects during his time at Oregon State.

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