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vol21no3

Washington State

MAGAZINE



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FIRSTwords

Permanence. The ancient Roman architect Vitruvius conceived of three primary virtues for structures: beauty, utility, and *firmitas*, a term that can be translated as permanence. Naturally, buildings can't be crafted to last through time immemorial. What is permanence if even stone monuments wear away into sand?

Moreover, as Washington State University architecture professor Ayad Rahmani asks in this issue's essay, maybe the longevity of structures should be questioned. Rahmani writes about Frank Lloyd Wright's organic view of buildings and their inevitable decay, and that we should perhaps consider their "measured return to the earth."

We don't really expect our buildings to last forever, but we rely on them and other structures, like bridges and roads, to remain stable enough for our safety. As we've seen from recent bridge closings and collapses, there's a pressing need in the United States to evaluate and repair bridges as they age and crack under pressures of increasing traffic and changes in the climate.

WSU researchers in the Voiland College of Engineering and Architecture are leading a national consortium to expand the durability and lifespan of transportation infrastructure, with ideas ranging from self-healing concrete to seismic retrofits with carbon fiber.

The natural landscape certainly isn't permanent, either. Fires alter forests and fields in significant ways, not all of them bad—if fires don't burn out of control. Indigenous people across the Northwest and beyond used fire for centuries in a cycle of renewal. This issue tells how Native Americans in Washington state are bringing back those traditions to prevent massive wildfires.

The use of preventive fire is just one piece of knowledge we want to keep. But in the digital era, how do we preserve knowledge stored on obsolete technology? It's a puzzle that WSU librarians and professors are pondering.

Sometimes knowledge is lost to time, but reminders stay intact. In Ethiopia, mysterious stelae—carved stones—stick out of the ground, but little is known of their history. Thanks to a partnership with Ethiopian universities, WSU graduate students and faculty are starting to unravel the story, and work to preserve the stelae for the future.

Of course, nothing is truly permanent, and we must do the best we can with our time. One fine example is Tim Pavish, who retired from the WSU Alumni Association after 18 successful years. He will be missed but his legacy of achievement, expanding the WSUAA in many ways, will remain.

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TALKback

Back-breaking work

Truly outstanding work on the asparagus story by Adriana Janovich. I was heartened to see her acknowledge the back-breaking nature of the harvest. Back in 1985, as a young reporter at the *Tri-City Herald*, I spent two days in the fields cutting asparagus with a migrant farm family, the Acevedos. When I say “family,” it means everyone—mom, dad, three kids ages approximately 14-18, and grandma bringing food to the field for a quick lunch at around 10:30. The back pain lasted more than a week but, more notably, my admiration for the people who bring asparagus to our grocery stores and restaurants has lasted a lifetime. Earnings are based 100 percent on the amount cut and the size, shape and condition of the spears. As I recall, my poor production equated to about 40 cents per hour. Thanks for bringing the story to Cougar Nation.

GREG WITTER ('84 COMM.)

Finally in the bag

Thanks for telling me the Burgerville story. I didn't know what it was until reading the article. I was at WSU 1970-72 and never heard of the place, but always wondered about it because there's a quote in the 1970-71 blue WSU yearbook that speaks of the place. Early in the yearbook there's a full-page color picture of a student trudging through the campus snow with the caption: “Burgerville, I am going to murder you ... I am going to take a wool muffler & choke your cold weather ...”

By the way, when did Burgerville close up shop? What were the circumstances, and what is in that spot now?

TIM MELLIN ('72 COMM.)

Editor's Note: We looked up the 1970-71 Chinook and it does indeed start with a poem featuring Burgerville and accompanying photos over 15 pages. Burgerville closed in 1975 as times had changed and drive-ins began offering more inside dining. Burgerville didn't have the space. By 1979, the building became the distribution center for the Spokesman-Review and Spokane Chronicle. In 1995, coffee place Daily Grind opened there but closed its doors in 2005. The old Burgerville building was demolished in November 2008 and today is the site of an exhibit welcoming Pullman visitors in many languages.

Memories of Johnson Hall

Johnson Hall at Washington State University Pullman opened in 1961 and is scheduled to be torn down in 2022. A new agricultural research and USDA building will be constructed in its place. We asked alumni, faculty, staff, and friends to share memories of Johnson Hall. Below are just a few of the many responses.

You can read all the memories and add your own at magazine.wsu.edu/memories-of-johnson-hall.

“Many of my classes were held in Johnson Hall as I studied forestry and wildland recreation. I have one very special memory. I posted an ad on a Johnson Hall bulletin board looking to borrow an axe for Dr. Dingle's silviculture field class. A fellow classmate named John Durkee wrote down my phone number. He didn't have an axe to loan, but he called and asked me out! We married three years later and were together until his passing in 2016.”

— Karen Durkee '75

“Woody Kalin was my advisor in ornamental horticulture. I will never forget ‘Plant ID.’ Walking all over Pullman in the dead of winter. Whenever we go back for football games, I have to go find the display case with the twigs and plants to identify! Johnson Hall will be missed.”

— Martha Johnson '83

“In the basement at the east end of Johnson Hall was a small fruit and vegetable processing area. As a food science major, I took a class that used that area to teach about processing equipment. I recall one lab where we developed a new potato product. It tasted good but the texture was kind of gooey. We named the new product ‘Tater Snots.’”

— Russ Salvadalena '77, retired staff

“I spent many hours in Johnson Hall as a hort major in 2000-2003. I loved all the indoor plants that were slowly taking over the library, and I loved when the beautiful serviceberry tree would bloom right outside the library doors!”

— Jody Strom '03

“I spent almost every day of my college career in some room in Johnson Hall. The students dubbed Johnson 22 ‘The Dungeon,’ and that is where I had a 7 a.m. landscape ecology class with Dr. Mark Swanson. It is one of my favorite college memories. We also used this same room for all of Dr. Zamora's plant identification classes. I feel lucky to have spent such time in ‘The Dungeon.’”

— Brad Allen '10

“I worked as a computer consultant in Johnson Hall in 1977-1979, when the Computing Center was housed there. It was a state data processing center at the time. It was also the place to turn in your punch cards (as I used while getting my MBA during those years), and get your reams of fan-folded, green-bar, printed output from the massive printers.”

— Vernene Trautman Scheurer '79 MBA, retired staff



PHOTO FROM 1962 WSU CHINOOK

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Laureates are an exceptional group of donors whose cumulative contributions to the WSU Foundation have reached the \$1 million mark, while Crimson Benefactors have reached the \$500,000 giving milestone.

Each spring, it is our great pleasure to honor these remarkable individuals, families, and foundations during the Foundation's annual Recognition Gala. Congratulations to all!

We offer our heartfelt gratitude for all you do to keep the Cougar community strong. Go Cougs!



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UPfront

What to do with a Bernoulli Box?

BY REBECCA PHILLIPS

Hidden in Norway's icy Svalbard archipelago, the **Arctic World Archive** holds a collection of cultural treasures and irreplaceable information from nations around the globe.

Similar to the Svalbard Global Seed Vault, which safeguards seeds from thousands of essential crops, the World Archive serves as a repository for civilization and knowledge including digital technology and software.

Designed to preserve data into the distant future, the archive holds materials like the source code for the Linux and Android operating systems, and digital versions of political histories, scientific breakthroughs, Rembrandt masterpieces, Vatican manuscripts, and more.

But maintaining our modern digital heritage beyond the Arctic tundra can be tricky.

"Software preservation is almost a losing battle," says Roger Whitson, Washington State University associate professor of English who conducts research in the field of media history.

"We can do a lot but at the end of the day, there is no perfect file format that will be accessible forever. Inevitably, these media types degrade, the actual signal we're trying to preserve degrades, so you always have to be thinking ahead of the current situation. It's a complicated problem."

Indeed, computers and formats advance so rapidly that in just a short time, both hardware and software become defunct. And when a floppy disk, CD, or DVD is no longer accessible, all of the information it contains is likewise lost.

Whitson says some scientists fear that massive amounts of the world's digital information will be lost in what has been called the "digital dark age." Unlike in the past, very few physical records exist for much of the digital material produced today. On top of that, our digital storage devices are very short-lived.

"There's so much data being produced but we have no real plan to archive that work in any way that's sustainable," Whitson says. "Take social media, for example. A lot of people are archiving photos on Facebook or Instagram but these are private companies, not public institutions. What happens if Facebook goes bankrupt one day?"

Whitson says one of the university's overarching purposes is to act as a citadel of knowledge—to both create new knowledge and preserve old knowledge.



P E R M A N E N C E

Helping to fulfill that role is WSU university archivist Mark O'English, who salvages boxes and boxes of disintegrating information for Manuscripts, Archives & Special Collections.

"Ninety-eight percent of the electronic media arrives on things like 3-inch disks with information that needs to be preserved," he says. "Usually, we migrate the material to a device that works with current modern software, but we always keep the original source."

O'English says one of the worst problems is trying to save material on electromagnetic

tape such as VHS, audio cassette, and reel-to-reel tapes. These U-matic tapes have a lifespan of only 10-30 years.

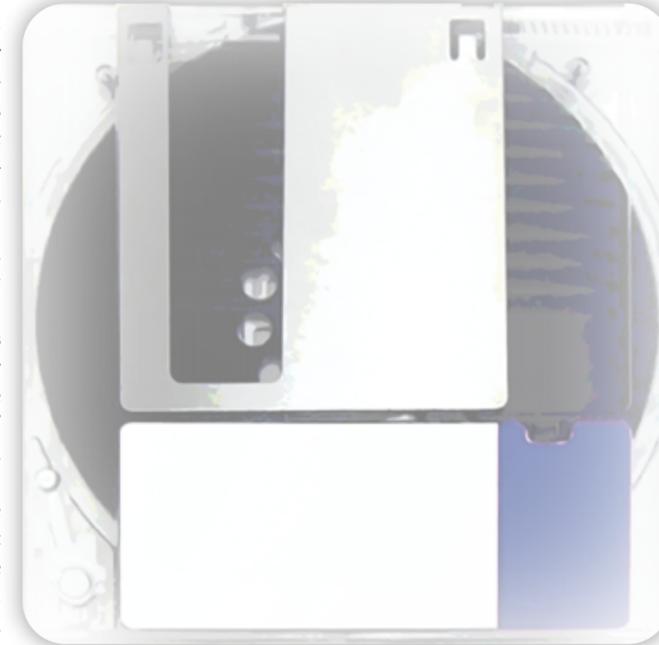
"I have student employees who spend all their time converting them to digital formats so we'll have access to it in the future," he says. "The older 16-mm film lasts a long time as there is a real picture on the film, not just an electromagnetic recording."

Among the most unusual relics O'English has archived at WSU are sets of View-Master stereoscopes and reels once used for veterinary teaching and research.

"Most people used View-Master slides for national parks or Disney stories," he says. "But they were also used as a serious educational tool for science and medical research."

WSU professor of veterinary medicine Lavon Koger ('41 Vet. Sci., '42 DVM) used the View-Master reels in the 1960s and '70s to give veterinary students and faculty a three-dimensional look at surgical procedures.

O'English says his favorite piece of obsolete technology is a 10-megabyte floppy disk system called a Bernoulli Box.



FROM TOP: AWA VAULT (COURTESY ARCTIC WORLD ARCHIVE); BERNOULLI DRIVE CARTRIDGE IMAGE FROM PHOTO COURTESY COMPUTER HISTORY MUSEUM



ABOVE: MARK O'ENGLISH WITH EDISON HOME PHONOGRAPH (COURTESY MASC)
BELOW: STUDENT WITH VINTAGE VIEW-MASTER (COURTESY MOTAL)

"It's effectively a giant-size flash drive," he says, holding up a wide flat box. "I can guarantee the eight-inch disk in this drive is already toast. But even if it lasted 40 years, what are the odds I could find something I could plug this into?"

When it's necessary to retrieve important documents from antiquated technology like the Bernoulli Box, O'English tracks down vendors who have the right equipment to play it. The Washington State Digital Archives in Cheney, for example, has a library of operational devices including the Macintosh Classic, a 1990 Apple computer with all the appropriate hardware. *



Keeping it green

BY ALYSEN BOSTON

What do potatoes and bananas have in common? Lack of genetic diversity.

It's not a bad joke. In 1965, Gros Michel bananas went commercially extinct due to a fungal disease that spread throughout the world's plantations. Today, we eat Cavendish bananas, which is why banana-flavored candy doesn't really taste like bananas.

A hundred years earlier, the lack of genetic diversity in Irish potatoes left them unable to resist fungal disease, leading to a mass die-off of the crop. The Irish Potato

BARBARA HELLIER
(COURTESY USDA/ARS)

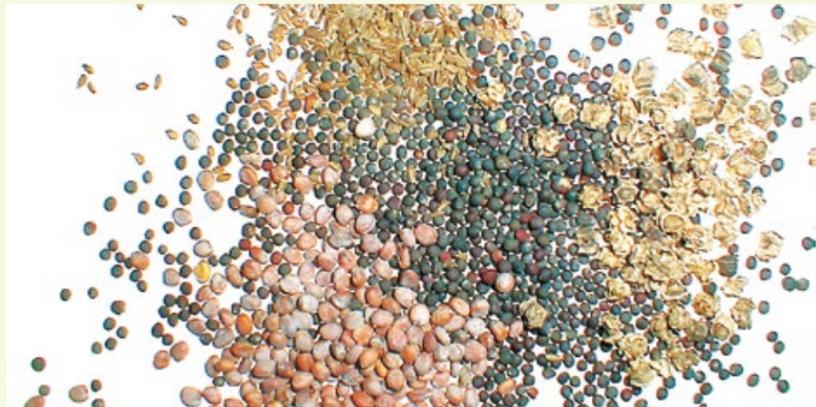


species through cycles of planting and harvesting seeds.

Researchers, hoping to combat climate change, use these seeds to breed more heat-resistant and water-efficient crops. The seeds might also help mitigate plant diseases.

"If researchers don't have anything to work with, they can't combat anything new that comes up," Hellier says. "So we provide the source material."

The Pullman seed bank is one of 18 operated by the US Department of Agriculture's Agricultural Research Service, and it stores crops that typically grow well in the region.



STAFF PHOTO

Famine of 1848 claimed a million Irish lives, and millions more escaped the island and migrated elsewhere to survive.

Seed banks are one of today's solutions to crop diversity, which has been in decline over the past 50 years, and not just for bananas and potatoes. Curators like Barbara Hellier, a horticulturist for the Plant Germplasm Introduction Testing and Research Unit at Washington State University Pullman, help maintain a variety of

On a more global scale, in 2004 the United Nations Food and Agriculture Organization founded the Crop Trust, an organization whose mission is to bolster global food security. It operates the Svalbard Global Seed Vault, which stores backups of the world's crop collections in case of war or disaster, using the island's location in the Arctic Circle to ensure seed samples remain frozen even in the absence of electricity.

"If we don't have the building blocks for the future, we're out of luck," Hellier says. "If we have them in the seed bank ready to go, we're that much ahead." *

Preserving the "Land of Origins"

Scattered across the Gedeo Zone in southern Ethiopia are thousands of mysterious stone monoliths rising as high as 20 feet.

Under consideration as a UNESCO World Heritage Site, the region has the largest number and highest concentration of the monoliths, or stelae, have fallen. While many appear undecorated, a few have intricately wrought faces and other anthropomorphic designs carved into the stone.

But perhaps the most intriguing aspect of the megalithic stele sites is how little is known about them.

"We don't know who built the stelae in southern Ethiopia or why," says Addisalem Melesse, a Washington State University doctoral student in archaeology. "However, the research we are doing at WSU is starting to shed light on the monument's history and the people who built them."

Melesse worked for the Ethiopian Department of Archaeology and Heritage Management and as an archaeology lecturer at Ethiopia's Hawassa University before going to Pullman in 2017 to pursue his doctorate.

Last fall, he was part of a WSU research team that found that stelae at the Sakaro Sodo archaeological site were likely created during the first century CE, a thousand years older than previously thought.

Now, he is working with Andrew Duff, WSU archaeology professor and department chair, and the Ethiopian Department of Archaeology and Heritage Management to determine how to manage the stele sites better.

"Two of the big challenges of preserving the sites are population pressure and development," Melesse says. "We are trying to come up with ways where conserving the stones actually benefits the people whose land they are on."

He explains the Gedeo Zone is located in a rapidly growing region with as many as 1,000 people per square kilometer in some areas. By comparison, the United States has an average population density of 36 people per square kilometer.

This population growth makes land a precious commodity, and some stelae are being torn down to make way for agriculture or development.

To address this challenge, Melesse and his collaborators are proposing a system where revenue from visitors to the sites would be given back to the people whose land is occupied by the stones.

"While the largest stele sites are fairly well protected and fenced, there are a lot of smaller clusters of the stones and individual isolated stones that are being torn down," Melesse says.

BY WILL FERGUSON

Another local revenue generator for communities could be construction of heritage centers in villages near the stele monuments that could serve as regional museums and provide a place for local goods and crafts to be sold to tourists.

While the project has been slowed due to the COVID-19 pandemic, Melesse and his collaborators hope to begin implementing their plans in the next couple of years. Their ultimate goal is to develop the Gedeo Zone into more of a tourist destination for Westerners.

"In terms of archaeology, cultural and ethnic diversity, Ethiopia is just a totally fascinating place to visit," says Barry Hewlett, a WSU anthropology professor who has been working in Ethiopia for more than a decade.

Hewlett played a key role in establishing the relationship between WSU and several universities in Ethiopia that has made much of the recent conservation work and research at the stele sites possible.

He originally went to Ethiopia on a Fulbright scholarship in 2010 with his wife Bonnie Hewlett, also a WSU anthropology faculty member, to teach and conduct research. Since then, Hewlett and WSU have established formal relationships with Hawassa and Arba Minch Universities in Ethiopia. Now, in part due to WSU connections, Hawassa offers its own doctorate in archaeology and the WSU Department of Anthropology has more anthropological research taking place in Ethiopia than any other US university. *



SAKARO SODO (PHOTO ANDREW DUFF)

UPfront

"Army strong"

BY LARRY CLARK

As the snow fell on a frigid Pullman campus last December, family, friends, and cadets gathered in the warm and decorated Lewis Alumni Centre for a ceremony that has taken place on campus for over 125 years.

Lucas LeMaster and Thomas Schuett were receiving their commissions as US Army lieutenants from the Washington State University Army Reserve Officers' Training Corps (ROTC) program.

A familiar face for LeMaster stepped up to the podium as the guest speaker: his father,

football—a sense of belonging to a team." The general recalled tough physical training but real camaraderie. "Cougar Rangers was a blast! Every Wednesday at the Field House we trained on patrolling, marksmanship, rappelling, field craft. The same group would socialize together, too. We were a tight bunch."

Schuett and Lucas LeMaster then took their oath, gave their first salute, and celebrated with fellow ROTC cadets and family. They graduated the following day.

Both LeMasters, father and son, knew about the rigors of ROTC before they joined. Lucas's grandfather, Dennis C. LeMaster ('61, '70 MA, '74 PhD Econ.), also received his ROTC commission as a second lieutenant the same day he graduated from WSU in 1961.

He served in the US Army through August 1964 as an armor officer and received the Army Commendation Medal for meritorious service. The older Dennis then joined the FBI as a special agent from 1966 through 1968, working in

The three generations of LeMaster officers represent an ROTC tradition at Washington State that hails from the beginning of the institution. Army ROTC is the university's oldest program, in continuous operation since 1892.

Military science was one of eight original departments at Washington Agricultural College, and military science courses were required for all male students as part of the Morrill Land Grant Act until 1976. An estimated 10,000 Washington State students have participated as cadets, with over 7,000 becoming Army lieutenants.

For Major General LeMaster, "the whole experience began for me personally in 1984 and culminates with commissioning my son, so this is the best part of my ROTC experience." He adds, "I am eternally grateful for the support that the university administration gives to the ROTC program."



WSU ROTC PREPPING FOR THE NEXT RANGER CHALLENGE (COURTESY COUGAR BATTALION ARMY ROTC/UNIVMETA)

Major General Dennis P. LeMaster ('87 Forest & Range Mgmt). It was a ceremony the general knew well. He was also commissioned through WSU ROTC in 1987 before embarking on a successful US Army career that culminated in his current station as commanding general of the US Army Medical Center of Excellence (MEDCoE).

Major General LeMaster shared his leadership lessons with the cadets and audience, along with his own memories from his time with WSU ROTC's Cougar Battalion.

He noted that WSU ROTC "offered me what I'd been looking for since high school

the Denver and Los Angeles offices on several major cases, including the assassination of Martin Luther King Jr. He returned to WSU and received his doctorate in economics, worked for the US Congress, and took a faculty position at WSU in 1978. He retired from Purdue University in 2005 and now lives in Everett.

His son Dennis grew up in Pullman and, after he graduated from WSU, was assigned to the Army medical corps. He went on to a decorated career that included graduate degrees from Webster University and Army War College. He assumed command of the MEDCoE in 2020.

Lucas, who received his civil engineering degree, says it felt like destiny to join the program. "I've always just kind of seen myself coming to Washington State University and joining ROTC, especially after visiting as a junior in high school."

He now heads to Fort Benning in Georgia for further training.

Another unexpected honor was also given at the December ceremony. The WSU Alumni Association presented both Dennis C. and Dennis P. LeMaster with the Alumni Achievement Award, the highest honor from the WSUAA. *

WELLbeats

Weeding out drug clash

If cannabis is your remedy for aches and pains, take note—new research shows its ingredients could potentially cause serious interactions with over-the-counter and prescription drugs.

Since Washington legalized medical marijuana in 1998, cannabinoids like tetrahydrocannabinol (THC) and cannabidiol (CBD) have been used to treat everything from sore joints and anxiety to migraines and the side effects of cancer treatments. But actual data on the effectiveness and long-term impact still lags behind.

Philip Lazarus, Boeing Distinguished Professor of Pharmaceutical Sciences, Washington State University Health Sciences Spokane, recently added clarity to the discussion with studies showing that several chemicals in cannabis interfere with the body's most important enzyme systems in the liver and kidneys.

"Our primary focus is on the enzymes which metabolize everything we inhale, ingest, or absorb through our skin," says Lazarus. "We're most interested in the cytochrome P450s and UDP-glucuronosyltransferases (UGTs), which metabolize and excrete in urine or feces over 70 percent of the most commonly used drugs."

Lazarus says occasional cannabis use in young people is typically not a concern, but for older people who are taking multiple medications, there could be problems.

His studies are based on 30 years of research examining nicotine addiction and the effects of tobacco on enzymes and human health. Four years ago, he extended those studies to cannabis.

His recent findings were published last winter in the journal *Drug Metabolism and Disposition*. They are the first studies to investigate the most abundant cannabinoids, their metabolites, and the way they interact with enzymes. Those cannabinoids include THC, CBD, and cannabiol (CBN).

College of Pharmacy and Pharmaceutical Sciences graduate student Shamema Nasrin was first author on the findings and explained in a press release that although the body breaks down cannabinoids within about 30 minutes, the metabolites can linger in the bloodstream at higher concentrations than the cannabinoids for days.

Lazarus says, "We're showing that these metabolites are very inhibitory to the metabolism of a variety of compounds. For example, the breast cancer drug tamoxifen needs to be metabolized by cytochrome P450 enzymes into endoxifen, which is the main active compound. But the enzyme necessary for this metabolism is inhibited by cannabinoids."

"A lot of cancer patients are taking or being prescribed medical marijuana and it's probably not a good idea for breast cancer patients," he says. "The tamoxifen may not

be as efficacious and hypothetically you might see a higher rate of secondary tumors. It has to be studied."

Another example is ibuprofen. Lazarus says cannabis strongly inhibits both the P450 and UGT enzymes necessary to metabolize ibuprofen.

"If a person is taking cannabis and ibuprofen simultaneously and long-term, the concentrations of ibuprofen in the body will be higher than normal as it's not getting metabolized and excreted as quickly. So, the toxic effects of ibuprofen on the kidney and GI tract may be stronger and could happen earlier."

Lazarus also says many of the major UGT enzymes in the kidney are inhibited by cannabinoids, so people with kidney problems might have trouble metabolizing drugs they previously handled well.

"I think doctors and pharmacists need to be thinking about this, especially those with older patients who might be prescribed CBD or medical marijuana," he says.

Despite the drawbacks, Lazarus says cannabis offers hope as a potential treatment for opioid and nicotine addictions.

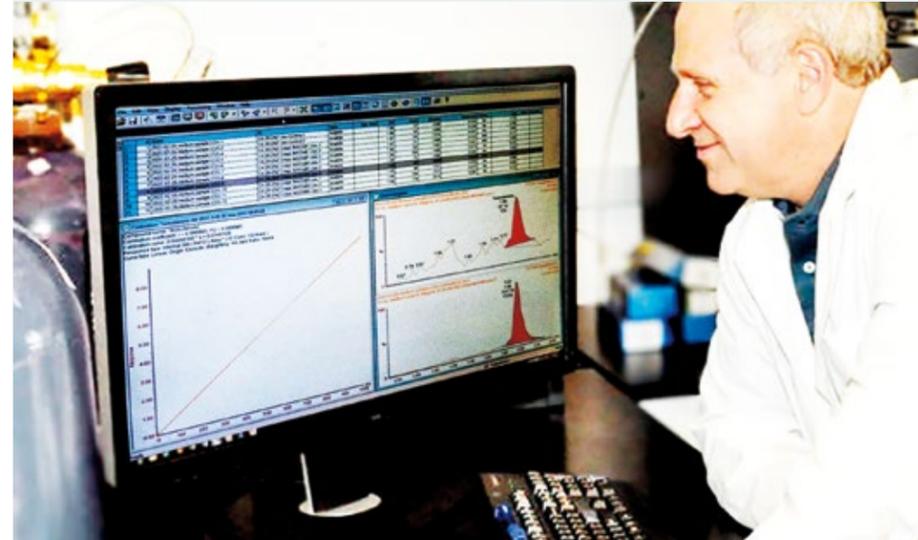
"It's something we want to study," he says. "In our lab, we see there's an interaction between cannabis and the metabolism of opioids like oxycodone and morphine. There are also interactions with benzodiazepines like valium."

"If we could inhibit an opioid user's metabolism through cannabinoids, maybe they won't need to take the opioid as much," says Lazarus. "Maybe they could have less toxicity and addiction."

The same holds for cigarette smokers who might not need to light up as often if nicotine levels stayed high in the body for longer periods of time. A smoker might be able to go from two packs a day to only a few cigarettes a day.

Lazarus makes it clear he is not advocating a ban on cannabis. Drug interactions are common for many medications, including statins whose metabolism is inhibited by grapefruit juice.

"Cannabis is useful," he says. "Even though it inhibits enzymes, it's not enough to cause problems for most people. It's only when you introduce other drugs into the system that it's a concern." *



PHILIP LAZARUS (COURTESY WSU HEALTH SCIENCES SPOKANE)

Seeds sown

THE SEEDS WERE PLANTED amid severe food shortages during World War II.

In the early 1940s, global demand for vegetable seed was great and Washington state was a major player, producing spinach, beet, turnip, and cabbage seed for the world market. In fact, it dominated the cabbage seed industry, with 90 percent of the supply.

At the same time, disease was devastating local seed crops. The blight was so bad in winter 1942 that nearly the entire cabbage seed harvest was lost. A “Skagit Area Vegetable Seed Survey” recommended immediate action.

“It was a crisis,” says Debra Ann Inglis (’78 MS, ’82 PhD Plant Path.), a retired longtime professor and plant pathologist at Washington State University’s **Northwestern Washington Research and Extension Center (NWREC)** near Mount Vernon.

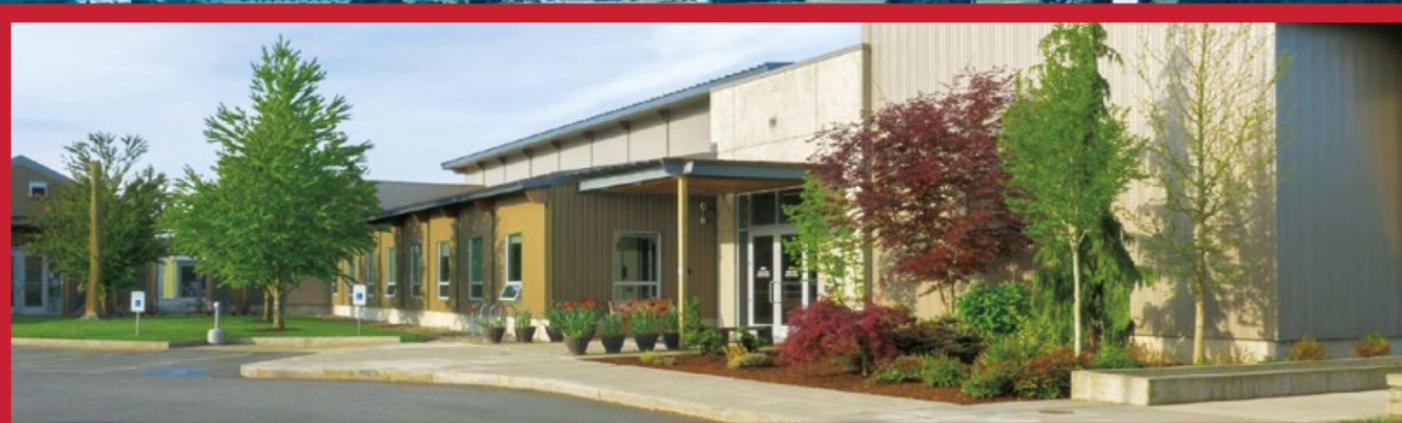
The cabbage seed calamity—and stakeholders who mobilized around it—sowed the seeds for the center, which **celebrates 75 years** this year. A commemorative Field Day is planned for July 13, the same day as the center’s first Field Day in 1948. Since its inception one year earlier, the center, part of WSU’s College of Agricultural, Human, and Natural Resource Sciences, has played an integral role in agriculture in northwest Washington and beyond.

The research conducted at NWREC—on specialty potatoes, blueberries, strawberries, red raspberries, cucurbits, carrots, onions, peas, cider apples, soil, pollinators, and cabbage, beet, spinach, and other seed crops—has not only helped local farmers but has made an impact on agriculture worldwide. And, importantly, the community support that helped make the center possible continues today.

“The community, over time, has taken action on behalf of the center, and the center has taken action on behalf of the community,” says Inglis, who served as interim director of NWREC from 2004 to 2008, two years before and after the center’s revitalization.

Its state-of-the-art Agricultural Research and Technology Building opened in 2006 with support from WSU, state and federal monies, and members of the local agricultural community—just like in the beginning.

“What was really exciting for me was, at that time, I was working with the children and grandchildren of some of the people who did the same thing in the ‘40s,” Inglis says. “That was really meaningful for me, to see history repeat itself.”



NORTHWESTERN WASHINGTON RESEARCH AND EXTENSION CENTER (NWREC) at Mount Vernon

PHOTOS COURTESY NWREC

ON JUNE 1, 1943, the US Department of Agriculture, Washington State Department of Agriculture, and other stakeholders agreed to establish a research program to address seed crop problems. Growers, granges, community groups, and more began raising funds. WSU was asked to help staff the effort.

Thomas Randall, a horticulturist from what is now the Puyallup Research and Extension Center, went to Mount Vernon to oversee the program. Glenn S. Pound came from the USDA Bureau of Plant Industry to conduct emergency research. It was his first assignment.

Within a year, Pound broke the disease cycle by isolating cabbage seedling transplant beds from seed production fields, preventing transmission of the aphid-borne virus. Average cabbage seed crop yields jumped from 402 pounds in 1942 to 908 pounds in 1947. Growers decided they wanted a permanent program, forming what is now the Northwest Agricultural Research Foundation. “They just persevered,” Inglis says.

During its first six decades, NWREC, originally known as the Northwest Seed and Truck Crop Laboratory, was a small outfit focused on agricultural problem-solving. It was managed by the Puyallup center and employed two to four faculty scientists and about a dozen staff members, along with a few graduate and post-doctoral students.

By the 1990s, facilities were deteriorating. “Tractors were breaking down,” Inglis recalls. “Morale was low. We were working out of a cement block building that had big cracks in it. The threat of closure was very, very real, and the local agricultural community was concerned. They didn’t want it to close.”

Growers advocated for the center, chartering a plane to Pullman to make their case. A vision committee formed. Fundraising efforts procured about \$2.25 million. WSU allocated \$6 million.

TODAY, THE 183-ACRE CENTER has six faculty, 40 staff members, and 25 graduate students. “Our scientists,” says interim director Carol Miles, “are world-class.”

Their disciplines are vegetable seed pathology, vegetable and small fruit horticulture and pathology, soil science, and plant breeding. They explore alternative crops and herbicide substitutes, crop irrigation optimization, pollination improvements, and new ways to control diseases affecting potatoes, cruciferous seed crops, and blueberries.

They also investigate biodegradable mulches, biofuel crops, high tunnel systems, riparian buffers, pest and disease control measures for conventional and organic production systems, soil quality resilience, mechanized fruit harvest systems, vegetable grafting, and much more.

“We continue to do what we did at the start,” says Miles, a professor of vegetable horticulture at WSU since 1994. “We continue to help growers solve their problems. New issues emerge all the time, and they affect everybody. Our work extends far beyond Washington. It has worldwide significance.”

For example, Miles says, NWREC is one of four sites in the world that researches diseases affecting spinach seed crops. And the center played a pivotal role in the current international hard cider industry, partnering with Cornell University to hold classes for people from all over the world on modern hard cider production methods.

The center also hosts many agricultural-themed meetings—from congressional visits to grower workshops and gardening symposiums. The WSU Master Gardeners hold meetings at the center. So does the Washington Farm Bureau and Western Washington Agricultural Association.

“It is a hub,” says Sue Christianson (’76 Food Sci. & Tech.), who spearheaded fundraising efforts for the center’s revitalization. She and her husband, Ken, received the 2012 Weldon B. Gibson Distinguished Volunteer Award, the WSU Foundation’s highest volunteer honor.

NWREC is “a community fixture,” Christianson says. “It has withstood the test of time.” ✨

- 1947** Martin W. Carstens is hired as the first superintendent.
- 1948** The main building, repair shop, and storage hut are completed.
- 1951** The weed science program launches.
- 1961** A red oak is planted in memory of Carstens.
- 1968** Growers raise money to study a new pea wilt disease.
- 1979** Six cider apple varieties are planted.
- 1986** The treehouse meeting space is completed.
- 1988** Farmers raise funds to investigate herbicide alternatives.
- 1993** The potato research program launches.
- 1994** A cider apple trial orchard is established with more than 70 varieties.
- 1996** Ground breaks on the WSU Skagit County Master Gardeners Discovery Garden. Today, the center houses three Volunteer Display Gardens, including the Washington Native Plant Society Garden and Western Washington Fruit Research Foundation Garden.
- 2003** Cider workshops launch.
- 2004** The Olson Heritage Farmhouse is dedicated.
- 2005** Ground breaks on the Agricultural Research & Technology Building.
- 2006** The Agricultural Research & Technology Building opens. The old main building is torn down.
- 2007** The entomology and vegetable horticulture programs are established.
- 2016** US Secretary of Agriculture Tom Vilsack visits.
- 2018** The soil program launches.
- 2021** The berry and potato pathology program launches. The Wiley Headhouse is dedicated.

A fond farewell to one swell...

WHEN HIS SCHOOL CALLED, this Cougar answered.

Washington State University President V. Lane Rawlins contacted Tim Pavish ('80 Comm.), a longtime volunteer, in 2003 and encouraged him to apply for executive director at the WSU Alumni Association.

Pavish got the WSUAA position and, 18 years later, will retire in June after astounding success in building a robust alumni association that tripled membership and expanded its many events.

His roots run deep in Palouse soil. A first-generation college student from Walla Walla, Pavish came to Pullman in 1976 and fell in love.

"I met my wife-to-be Carin at WSU. She invited me to come to her Pi Beta Phi pledge dance," says Pavish, who was in Lambda Chi Alpha. It was one of his many happy memories of Washington State, along with the crisp smell of fall frost on campus.

"I've always considered myself extraordinarily fortunate to have received the education that I did," Pavish says.

After graduation, he credits every job to Cougar connections: communications for the state's Apple Commission, roles up to managing partner at prominent Seattle advertising agency DDB Worldwide, and eventually leading WSUAA. Pavish was also an ambassador on the WSU Foundation Board of Trustees, and a member of the WSU Athletic Foundation Advisory Committee, Advancement Communications Committee, and the Professional Advisory Board of the Murrow College.

"Tim followed a Cougar legend, Keith Lincoln," says Mike Connell ('85 Busi.), vice president for advancement and CEO of the WSU Foundation. "Only four people have had this job in the last 82 years, and Tim successfully brought his own style to the team."

That style, says Shelly Spangler ('07 Busi.), is a labor of love in tireless and enthusiastic support for the WSUAA team's work. Spangler, president of the WSUAA Board of Directors, first met Pavish at a WSUAA gameday event in Colorado that inspired her to volunteer.

"Tim sets the culture. The team loves the Alumni Association just as much as any of us in

a volunteer role," Spangler says. "Tim knows when to guide and he knows when to just get the heck out of the way and let his team go."

And the WSUAA team has gone far. Under Pavish's leadership, the Alumni Association grew from 13,000 members to around 44,000 members. When he started, they held 100 events a year and now average over 900 events annually. The WSU license plate program also brings in about \$700,000 a year for scholarships.

Even when the COVID-19 pandemic struck, the WSUAA adapted quickly. Membership actually grew in the last couple of years, as Pavish and the team converted popular programs, such as the Feast of the Arts to Feast@Home, a virtual gathering of Cougs with wine, food, and special guests that sold out each time. Pavish notes other events, too, like a video meeting with farmers and llamas in Bolivia.

"I give tons of credit to the team and our volunteers, but the biggest chunk of credit goes to the alumni because they love Washington State University," Pavish says.

Connell, responsible for finding the new WSUAA executive director, says, "We can't see around the corner, 10 years from now, in terms of what the expectations are going to be for an alumni association. But Tim made this a very attractive job. I'm also grateful, as an alum, for the job he's done."

Pavish certainly leaves a legacy stamped with his hallmark energy, smile, good-natured commitment to work hard, and strong love for WSU.

"Tim is such an advocate," Spangler says. "I've not met a more tried-and-true Cougar."

Pavish will continue to volunteer with WSU and spend time with his family: wife Carin Hull Pavish ('80 App. & Textiles), daughter McKenzie ('14 Soc. Sci.), and son Ben ('16 Fin.).

As he reflects on his time leading the WSUAA, Pavish especially feels thankful. "As I wrap things up as alumni director, the thing that I feel the most is gratitude. It was a very fulfilling way for me to give back to my alma mater."

Former WSUAA presidents have created the Pavish Possibilities Fund to honor Pavish's service. Visit give.wsu.edu to learn more.

...cat

PHOTO SHELLY HANKS

[a concise pickleball timeline: magazine.wsu.edu/extra/pickleball-history](https://magazine.wsu.edu/extra/pickleball-history)

Pickleball, inside and out

BY AMY LEFF KNAPP

PHOTO ISTOCK

BELAIR WITH HIS PICKLEBALL CONVERTS AT COOK COUNTY JAIL IN CHICAGO (COURTESY ROGER BELAIR)

ROGER BELAIR has been to prison many times, all for pickleball.

BelAir ('69 Busi.) loves pickleball because it brings people together. He first played the sport about 10 years ago and fell head over heels for it. As he shifted toward retirement, he began coaching at clubs and rec centers where he helped others get hooked on the game.

A self-proclaimed Pickleball Evangelist, BelAir's reasons for singing pickleball's praises are many: It's great exercise. It's easy to learn, not too strenuous on the joints, and you can excel at it no matter what your age or build. Best of all, there's a camaraderie and friendly competitiveness around pickleball that make you forget your worries and focus on fun.

These benefits of pickleball were top of mind for BelAir in 2017 when he tuned into a segment on *60 Minutes*. The reporters were covering Cook County Jail in Chicago and its enormous struggles with overcrowding, violence, and mental health issues. The solution was obvious to BelAir. "These guys are just sitting around," Roger pleaded to his wife and the TV set. "They should be getting off their butts, playing pickleball, and learning life lessons."

BelAir promptly wrote to Cook County Sheriff Tom Dart and offered to donate

equipment and coach inmates for free. Three months later, BelAir was standing on a pickleball court inside the third biggest prison in the United States surrounded by intimidating glares and abundant tattoos.

"It was a rough start," BelAir recalls. "My lecture on pickleball's origins wasn't going over well. So, I cut off my speech and said, 'Let's head out to the courts.'" All it took was five minutes and the inmates reverted to their 12-year-old selves, hitting plastic balls over nets and laughing like kids on a playground.

It was clear to BelAir that he was on to something.

BelAir continued his lessons at Cook County Jail, using humor and boundaries to keep the fun and integrity of the game intact. "In prison, there are gang leaders that make the rules for everybody," he explains. "Sometimes these 'shot callers' would decide to change the rules of pickleball, and I wouldn't let them."

It didn't take much to keep his players in line. The inmates knew that participation in the game was a privilege that could be revoked. An hour on the pickleball court was a bright spot in a tedious existence. No one wanted to risk losing it. This leverage, paired with BelAir's jovial approach, allowed him

Pickleball is "the fastest growing sport in America" (*The Economist*, 2021) with over 4 million Americans saying they play at least once a year. And Senate Bill 5615 made pickleball the official sport of Washington state in 2022!



to earn the inmates' trust and accomplish some amazing feats—like getting rival gang members to be doubles partners.

BelAir's stint at Cook County ended up being hugely beneficial. Pickleball gave these competitive, highly charged inmates a calm, healthy outlet for their stress. The game was less physical than basketball, which meant fewer fights and injuries and broader participation. BelAir's coaching helped foster unlikely friendships and encouraged teamwork, respect, and rule-following.

As word of his success at Cook County spread, more prison administrators sought out BelAir's services. Soon he was introducing pickleball in prisons from Rikers Island in New York to the Washington State Penitentiary in Walla Walla. He was on his way to California's San Quentin State Prison in 2020 when COVID-19 hit and sent BelAir, and the rest of the world, into a holding pattern. He found himself stuck on the outside while inmates inside faced extreme isolation and would have given much for a carefree hour of pickleball and laughter.

Fortunately, BelAir doesn't give up. As soon as he's allowed, you can bet he's going back to prison to share his love of pickleball. ✨



Fish Fans made waves

Above: Members of the WSU Fish Fans perform during Mother's Weekend 1965. **Opposite:** Fish Fans perform in 1968. Courtesy WSU Manuscripts, Archives, and Special Collections

BY ADRIANA JANOVICH

GOGGLES WEREN'T ALLOWED. But nose plugs were encouraged. "If you ran out of air and you didn't have your nose plugs on, you created a vacuum and water would rush into your nose," explains Marlene Giese ('67 Ed.). "I learned quickly to let out a little air all the time I was underwater."

Giese, a member of Washington State University's synchronized swim club from 1965 to 1967, was part of a once-longstanding Cougar aquatic tradition. Fish Fans drew crowds for 70 years, often entertaining sold-out audiences during Mom's Weekend performances. The club, dating to 1929, was wildly popular for decades.

"We had people clamoring for tickets," recalls Jimmie Chevrier (x'91) part of Fish Fans from 1987 to 1991. He was the only male member of the club during most of that time, and that didn't bother him. "It was one of the oldest student-funded clubs on campus when I was there. I was always very proud of that."

The first mention of what would become Fish Fans appears to be an April 1929

Evergreen article. The story in the student newspaper detailed Mother's Weekend activities in three paragraphs. The part about the natatorial program wasn't even an entire sentence. "A swimming exhibition by women students will be given during the afternoon in the new gymnasium..." it reads. The new gymnasium was Bohler Gym, which opened in 1928 with a basketball court, pool, and handball courts.

That initial exhibition was organized by Lois Carrell, a physical education instructor who served as the club's first adviser. Within two years, Fish Fans was formalized. The 1931 *Chinook* notes: "The purpose of this group, which has been named Fish Fans, is to further student interest in swimming at Washington State College. To be eligible to this organization the girl must pass a number of tests in diving, endurance swimming, and swimming for form. To earn a pin more difficult requirements must be passed."

Synchronized swimming, or artistic swimming, originated in the late nineteenth

century as ornamental swimming, or water ballet. The sport combines costumes, music, and choreographed moves in routines meant to look elegant and effortless. But they require tremendous flexibility, endurance, breath control, and core strength. "You have to be a really strong swimmer to be able to do this," Chevrier says. "A lot of people don't realize what a disciplined sport it is."

When he was in Fish Fans, practice was held twice weekly in Smith Gym pool and increased in frequency leading up to shows. "We would run through the entire show over and over again," he says. "It was exhausting."

Chevrier doesn't remember having to try out. But archives show Fish Fans used to hold tryouts twice in October—prelims and finals. The Manuscripts, Archives, and Special Collections at WSU Libraries includes a hand-written, undated skills test for would-be members. Among them: jump in, straight-arm crawl, alternate ballet legs, back pike somersault, front pike somersault, dolphin.

Giese remembers being one of "several girls that would form a circle and then move the circle down through the water while we were all still attached. I think the person in front of me gripped my head and neck with her feet, and I did the same for the person behind me. It seemed like forever that we were underwater, but finally got to the top—without letting go—and could take a breath."

One of her favorite parts of Fish Fans "was working with the boys. We would stand on their shoulders, they would duck down, and then stand up fast. We dove off their shoulders in a graceful—we hoped—swan dive."

Early aquacades—or water pageants or follies—featured lifesaving and stroke demonstrations in addition to routines. Sometimes, Fish Fans performed plays or musicals: *South Pacific* in 1950, *The Wizard of Oz* in 1949, *Snow White and the Seven*

Dwarfs in 1946, *Alice in Wonderland* in 1942. But, typically, the club offered themed shows. In 1975, when Fish Fans had 47 members, it was "Around the World in 80 Minutes." In 1964, it was "Once Upon a Splash." And in 1970, it was "Critic's Best," featuring odes to films such as *Funny Girl*.

Fish Fans produced a similar show in 1990. "I think it was called 'At the Movies,'" Chevrier says. "We picked songs from different soundtracks, like Simple Minds' 'Don't You (Forget About Me)' from *The Breakfast Club*. I did a solo to the love theme from *St. Elmo's Fire* and a duet to 'You're the One that I Want' from *Grease*. We were using the music of the time and trying to come up with modern themes. It was a lot of fun."

A holiday show was added in the early 1970s. And there were occasional exchanges with Silver Fish, the synchronized swimmers

from the University of Washington. But Mom's Weekend performances were the club's biggest events, raising money for costumes, scholarships, and more.

Agnes McQuarrie ('41 MS Phys. Ed.), listed with Helen Robinson ('32 Ed.) as co-founder of Fish Fans in the fiftieth anniversary program for 1979's "Time Passages" show, advised the club from 1944 to 1962. Sue Durrant ('62 MS Phys. Ed.) served from 1962 to 1968. Diane Albright took over in 1968, retiring in the late 1990s. By then, Fish Fans was treading water.

A 2000 *Evergreen* story noted the now-defunct team had three members "for the past two years," but was now up to six. "... we don't want to have to put an end to a club that has been around for so long," freshman Ellie Diehl ('03 Nursing) told the student newspaper. At that point, the *Evergreen* noted, "The club will accept anyone who is interested." *



INseason

Strawberries

BY ADRIANA JANOVICH

STRAWBERRIES IN PIKE PLACE MARKET (PHOTO: ISTOCK)

THESE LUSCIOUS RUBY-COLORED GEMS embody the gentle, fleeting sweetness of summer. Their season is short, just two to four weeks for most June-bearing varieties. You don't want to miss it.

Pacific Northwest strawberries—delicate, succulent, flavorful, highly perishable—are mostly grown for processing. The fresh fruit is too fragile to travel far.

“Most Pacific Northwest strawberries are not going to stand up to shipping and handling,” says Wendy Hoashi-Erhardt, who directs the small fruit breeding program at Washington State University’s Puyallup Research and Extension Center. “But, as a frozen export, our strawberries are enjoyed all over the world.”

Washington state is known, she says, for its “really deeply colored and richly flavored fruit.” But only a small portion of its strawberry crop is sold for fresh use. So when you find locally grown strawberries at a farm stand or farmers market, snatch them up.

They're best enjoyed the day they are picked—paired with whipped cream, dipped in chocolate, tossed with baby spinach leaves and balsamic vinegar, arranged atop a tart or Pavlova, or puréed into sauces for pancakes, desserts, or a rich and savory entrée. Strawberry sauce goes great with tangy goat cheese and tender beef steak, the signature dish at Amsterdam’s cozy and popular Van Kerkwijk restaurant. Why not attempt to recreate it at home with WSU Premium Beef and WSU-developed strawberries?

Several of the most popular varieties grown today in Washington, Oregon, and British Columbia were developed by WSU or are derived from WSU cultivars. The newest WSU strawberry release, Puget Crimson, debuted 12 years ago. The extra-plump and juicy variety was first cultivated by now-retired WSU strawberry breeder Patrick P. Moore and Hoashi-Erhardt. Moore also developed the Puget Reliance and Puget Summer varieties, respectively released in 1994 and 1998.

WSU breeds strawberries (*Fragaria x ananassa*) for hardiness, high yields, disease resistance, and characteristics such as firmness and size—along with that aforementioned intense color and flavor. These qualities are coveted for use in high-value products such as ice cream, yogurt, jam, and frozen whole-berry mixes.

Most Washington state strawberries are produced in Skagit and Whatcom Counties. But strawberries grow well throughout Western Washington, which offers an “an ideal environment” for growing strawberries, Hoashi-Erhardt says. “Strawberries tend to grow well where temperatures are mild in both winter and summer.”

Washington state has a long history of cultivation, dating to the 1830s. But, during the last 50 years, Hoashi-Erhardt says, “The market

has changed a lot. Washington and Oregon used to be major strawberry producers in the US. Starting in the 1970s, California became the dominant player.” Its strawberry yield more than tripled between 1974 and 1994. Today, California grows more than 90 percent of the nation’s strawberries. Washington grows about 1 percent.

Still, strawberries remain a high-value specialty crop in Washington and the Pacific Northwest. In 2018, Washington harvested 8.6 million pounds of fruit valued at nearly \$9.2 million.

Hoashi-Erhardt is part of a team of regional researchers proposing to study the state of the Pacific Northwest strawberry in an attempt to strengthen the industry following the dissolution of the Washington Strawberry Commission in 2018. The project includes an economic analysis as well as establishing a grower task force to determine the feasibility of organizing a new association to oversee marketing and set priorities.

Strawberries—not true berries, but aggregate accessory fruits—have been part of the breeding program at WSU Puyallup since the early 1940s. Chester Schwartze ('24, '35 PhD Hort.), Washington State’s first official strawberry breeder, developed nine varieties before retiring in 1970. In all, WSU has released 13 varieties.

Plus, “Lots of important varieties are derived from WSU material,” Hoashi-Erhardt notes, such as Sweet Sunrise, released in 2014 by the USDA in Corvallis, Oregon. The offspring of WSU’s Puget Reliance, Sweet Sunrise is one of the earliest varieties to ripen. It has high yields, large fruit, and sweet flavor, and is suited for both processing and fresh use.

WSU’s focus has historically been on June-bearing perennials. In the 2010s, the program was also developing day-neutral and ever-bearing strawberries, productive from May to October in Washington and well-suited for the fresh market.

US consumption of fresh strawberries has nearly doubled in the past 20 years, up from 4.86 pounds per capita in 2000 to 8.5 in 2020. The demand is there, says Hoashi-Erhardt, the fifth person and first woman to direct WSU’s small fruit breeding program. She took the helm in 2020.

“I personally think strawberries have a special place in Washington as a specialty crop,” she says. “Everyone loves strawberries. And we produce some of the best strawberries in the world.”

One of her favorite ways to enjoy them is to simply buy a flat of Puget Crimson and take it to a party. Says Hoashi-Erhardt, “They are gone in 15 minutes.”

+ recipes for strawberries: magazine.wsu.edu/extra/strawberries

Popular WSU-DEVELOPED STRAWBERRIES



Puget Crimson (2010) is a late-season, high-yielding, large-fruited, June-bearing strawberry with excellent flavor and color. It's moderately firm and well suited for both processing and fresh use, but generally favors

fresh use. “It is, in my opinion, the flavor standard of strawberries grown in the Northwest,” Hoashi-Erhardt says. “People ask for it by name at farm stands because of its fresh-eating quality. It's one of the best-flavored strawberries you can get here.”

Puget Summer (1998) is a medium-sized, very late-season strawberry with excellent flavor and low fruit rot. Plants sales peaked at 780,500 in 2012 in Washington, Oregon, and British Columbia.



Puget Reliance (1994) is a virus-tolerant, mid-season, high-yielding strawberry with good flavor and color. Its fairly soft large fruit is best suited for processing, but some growers also produce this

variety for fresh use. Plant sales peaked at 1.823 million in 2007 in Washington, Oregon, and British Columbia.

Rainier (1972)—still widely grown today, features large fruit and excellent fresh flavor.



Shuksan (1970)—a hardy variety also with excellent color and flavor, is still widely grown.

Other WSU-developed strawberries:

- * Tillikum (1983) * Olympus (1973) * Quinault (1967)
- * Nisqually (1967) * Columbia (1960) * Cascade (1960)
- * Puget Beauty (1956) * Northwest (1949)

FUN FACT: National Pick Strawberries Day is May 20

PHOTOS COURTESY OSU & ONEGREENWORLD

feature

BAD BREAKS FOR OUR STATE'S BRIDGES

BY LARRY CLARK

THE HIGHLY TRAVELED BRIDGE TO WEST SEATTLE WILL SOON HAVE SOME NEW CARBON FIBER BONES.

When Seattle engineers spotted cracks rapidly widening in 2020, the city made the tough call to shut down the bridge, one of the busiest in Seattle, disrupting a major route in the interest of safety. The repairs, slated for completion this summer, will restore the thoroughfare.

To the east, near downtown Spokane, a major bridge on I-90 in poor condition also desperately needs structural fixes, even as an estimated 40,000 vehicles traverse it every day.

Just a few miles from there, Rosamond Avenue Bridge crosses over I-90, but the bridge was closed last April because of cracks and heaving on the deck—and no funding to fix it.

Millions of vehicles rumble across more than 614,000 bridges every day in the United States. Many of them are in poor condition and getting worse, along with countless miles of roads requiring maintenance in the Pacific Northwest and across the country.

Yet, it's not just about steel, concrete, and asphalt.

"The risks to reliability and safety of the overall system affect everybody's daily life," says Xianming Shi in the Voiland College of Engineering and Architecture at Washington State University. "We're at a stage where we can send people to Mars, we can think about flying cars or autonomous vehicles, but our bridges are in such a dire condition and roads are full of potholes."

Shi studies ways to improve bridges and roads as a professor in the Department of Civil and Environmental Engineering. He also leads the National Center for Transportation Infrastructure Durability & Life-Extension (TriDurLE), a consortium of 11 universities funded as the only national center with the focus on infrastructure durability, sponsored by the US Department of Transportation. The researchers from WSU and around the United States aim to make bridges and roads more durable and significantly increase their lifespans.

It's a driving need. The bridge collapse near Pittsburgh, Pennsylvania, that injured ten people earlier this year alerted people again to the desperate state of the largest transportation infrastructure system in the world.

The American Society of Civil Engineers gave US roads a "D" and bridges a "C" grade in 2021, with nearly \$790 billion needed in immediate investment. Those structures face wear and tear hastened by climate extremes, natural disasters like earthquakes, and increases in traffic as populations grow.

Through advanced and cost-effective technologies such as nano-sealers for concrete, carbon fiber reinforcement of bridge columns, and AI-driven monitoring, Shi and the national center's members work with state and federal transportation departments, as well as business partners, to better secure bridges and roads for travelers.

A BRIDGE PROBLEM

Mark Gaines, state bridge engineer with the Washington State Department of Transportation (WSDOT), has worked for almost 22 years on the state's transportation infrastructure. He doesn't sugarcoat the problems.

Gaines says Washington state is only about 40 to 50 percent funded on preservation needs for bridges. "That means our bridges get about 50 cents on the dollar for what they actually need to be maintained in a state of good repair," he says. "The consequence is that, over time, we're going to see the condition deteriorate. Right now, we're at about 6 or 7 percent poor bridges."

He does note that poor conditions are different than safety issues. "Safety is managed by our inspection teams and if we see a bridge isn't safe out there, we take quick action to restrict or to shut it down." The city of Seattle made a similar call with the West Seattle span, which is not managed by WSDOT, Gaines notes.

Still, he says, if poor conditions aren't eventually addressed, there will be more closures, more load postings, and more restrictions on bridges as they deteriorate. In 2021, WSDOT managed 3,143 bridges and 131 of them were load-restricted or load-posted.

The deferred work on many bridges adds to the state's fix-it list, too. WSDOT-owned bridges in poor condition increased from 164 bridges in June 2020 to 179 in June 2021. The number

SEATTLE UNIVERSITY BRIDGE BLUEPRINT, 1915 (WIKIMEDIA COMMONS)



of bridges 80 years old or older—those with the most significant needs—climbed from 292 in June 2020 to 302 in June 2021.

It's not a problem unique to Washington state. About 8 percent of US bridges are considered poor. One out of every five miles of highway pavement is in poor condition.

The TriDurLE consortium works with WSDOT, Idaho Department of Transportation (ITD), and other state transportation departments to not only mitigate existing issues, but also find new ways to extend the lifespan of bridges and roads. The universities in TriDurLE, led by WSU, cover the United States and are charged with innovative research that's high risk and high return at times, Shi says.

"We have around 50 ongoing seed-grant projects looking at, for instance, self-healing concrete, greener ultra-high performance concrete, and drone-enabled bridge inspection," he says. "We can quickly diagnose the post-earthquake condition and residual load-bearing capacity of bridge piers, coupling artificial intelligence algorithms with images captured by drones."

A few other areas of inquiry include using resources such as recycled plastic and fly ash in asphalt and concrete, repurposing agricultural waste for deicing, and designing bridges to be more resilient in earthquakes. The national reach of the center helps the scientists understand regional differences, as well.

"We try to identify collaborators who represent different infrastructure challenges in different climatic zones, because Minnesota or Washington would be dealing with different challenges than Florida," Shi says.

TriDurLE also facilitates technology transfer, education, and workforce development. "It's not just everything happening in the lab. We're looking at how to engage students, especially those in diverse and underrepresented groups, to join research and get them interested in a transportation career," he says.

Shi's own academic background gives him an interesting perspective on transportation infrastructure. Although he's a fellow of the American Society of Civil Engineering, Shi studied industrial

management and chemistry, and in particular polymer chemistry and corrosion protection, which are highly relevant to bridge engineering.

Shi's research team, for example, has applied understanding of chemistry to develop nano-engineered penetrating sealers to keep moisture out of concrete and fill cracks in bridges and other structures.

Roadway deicers (including rock salt) and moisture can accelerate the failure of concrete structures that endure freeze and thaw cycles. With some cracks smaller than the human eye can see, such culprits make their way inside the concrete and could corrode the steel rebar.

"Once the concrete's cracked, all the water, salt, CO₂, everything gets in much faster. So, from that point it's usually three to ten years before a bridge is failing," Shi says. "You don't want to get to that stage; you want to intervene earlier. The typical design life of a bridge is 50 to 75 years. But with this kind of intervention early on, you can make that bridge last 100 years or 150 years."

While WSU researchers are also looking at alternatives for the more than 20 million metric tons of salt dumped on US roads to keep them clear of ice and snow, Shi's work could make a big impact on bridges that are already compromised.

The novel sealer developed by Shi and WSU graduate student Zhipeng Li showed a 75 percent improvement in repelling water and a 44 percent improvement in reducing salt damage in laboratory studies compared to a commercial sealer.

They added two nanomaterials, graphene oxide and montmorillonite nanoclay, to a commercial penetrating sealer, which further repelled water and made concrete denser. That makes it more difficult for moisture to penetrate and forms a barrier against physical and chemical damage from deicing salt.

The sealer developed by Shi and Li is also water-based and more environmentally friendly. They have applied for a provisional patent and, after a pilot study in Pullman over the next two years, the researchers would like to see the technology commercialized.

WEST SEATTLE BRIDGE NIGHT SCENE IN 2012 (PHOTO DEAN FORBES)



potential hazard lingers in the minds of transportation officials and researchers: the big one.

A SEISMIC SHIFT

At almost 11 in the morning on February 28, 2001, Western Washington started shaking. A 6.8 magnitude earthquake with its epicenter about 10 miles northeast of Olympia damaged buildings, roads, and bridges across the region. The Nisqually Quake, the first major seismic event in the area since 1965, accelerated WSDOT plans to retrofit older bridges to prevent catastrophic collapses or further damage.

The most significant damage was to the Alaskan Way Viaduct, which experienced significant cracking and settlement likely due to liquifiable soils in the Seattle area. Fortunately, many other Washington bridges held up well.

WSDOT had already started seismic retrofitting on bridges built before 1983. Bridges constructed from 1983 on were designed for seismic events and are expected to perform reasonably well during an earthquake. In recent years, Gaines says, the department concentrated on "lifeline" bridges, ones designed so that emergency vehicles and suppliers can use them even in the worst disasters.

After 2001, WSDOT completed retrofits on 323 bridges and partial retrofits on 114 more. Several high-profile bridge projects in the central Puget Sound area increased seismic resilience, especially the 2016 opening of the new SR 520 floating bridge and the 2019 Alaskan Way Tunnel replacement of the original damaged viaduct.

A number of bridges, particularly 103 of them along lifeline routes, still await work. It's a pressing concern for the department, especially with the possibility of a massive earthquake along the Cascadia Subduction Zone.

Gaines says that older bridges "are not designed for lateral movement of the ground shaking that you're going to see during a

big event. So, one of the susceptibilities for most of the bridges from before the 1970s are in the columns."

The traditional method of reinforcing bridge columns against seismic damage is surrounding them with a steel jacket. It leaves a bit of a gap between the concrete column and the jacket, which is filled with cement grout to ensure full contact between the column and the jacket.

The department is looking at moving more toward carbon fiber and composite type materials, which are generally as effective as steel jackets in confining the columns but are often easier to install.

WSU civil engineering researchers Chris Motter and Adam Phillips, both part of TriDurLE, have been analyzing bridge column jackets made of steel and carbon fiber, as well as resilience in a large and long seismic event.

"Seismologists are starting to better understand what we can expect from the fault," Motter says. "They're talking about a large magnitude, long duration earthquake. So, it could be strong shaking for multiple minutes. We've tried to really get that feature of the earthquake into our study."

QUICKLY WORSENING WEST SEATTLE BRIDGE CRACKS IN 2019 (COURTESY SEATTLE DEPARTMENT OF TRANSPORTATION)



XIANMING SHI (PHOTO SHELLY HANKS)

The pair work with University of Washington and US Geological Survey experts, who simulate Western Washington ground motions from a rupture of the Cascadia Subduction Zone. Motter and Phillips use that information to run bridge failure simulations, also using materials donated by Simpson Strong-Tie.

Phillips says the structural dynamics of a bridge change the reaction, too. “Generally, a longer bridge is going to have a longer period of vibration. It’ll oscillate back and forth slower than a shorter bridge.”

Many bridge columns, they say, tend to be pretty brittle if they don’t have much rebar in them. A jacket, steel or otherwise, maintains the integrity of the column. In a long duration earthquake, though, the vertical rebar actually fractures from the fatigue.

According to Motter and Phillips, the advantage of a carbon fiber jacket is mostly twofold. First, there’s less corrosion than steel, which is even more important in places close to salt water. Second, as Gaines noted, installation costs less and is more convenient.

Steel jackets require heavy equipment and possibly shutting down lanes of traffic. With carbon fiber, Motter says, “they can show up in a pickup truck, pull off the road and just do it. And the price of carbon fiber material has come down over the last 10 to 20 years.”

Phillips says they’re encouraged by the results of their study so far which show that bridges with retrofitted columns can withstand a powerful, longer earthquake.

Gaines says the most important thing is that, by designing new bridges and retrofitting older ones for larger earthquakes, WSDOT and other transportation departments in seismically active states can keep the bridges standing and save lives.

A ROAD TO SOMEWHERE

While earthquakes might not be as much of a concern in the Inland Northwest, weather and other conditions wear down roads as well as bridges. Drive east from Spokane on I-90 and you’ll end up on Idaho roads and bridges that face, like Washington and all states, a backlog of needs to make sure people can travel safely.

One way to prioritize that list of projects is to use machine learning to determine the best use of funds.

In coordination with TriDurLE and Shi, the ITD is developing better prediction models powered by artificial intel-

INTERSTATE 90 BRIDGE OVER LATAH CREEK DETERIORATION IN 2014 (PHOTO KYLE JARVIN/BRIDGEHUNTER)



INTERSTATE 90 BRIDGE OVER LATAH CREEK IN 2009 (PHOTO THADDEUS ROAN)



RILEY BENDER (COURTESY IDT)

87 percent of Idaho’s roads were in good or fair condition, and Bender would like to see that get even better.

“I drive on the highway, just like everybody else,” Bender says. “I want to make sure that it’s to the requirement that we need.”

A BETTER PATH TO TRAVEL

Shi compares the growing problems with bridges and roads to deferred car maintenance that ends up costing more. “If you intervene at the right time early on, then you spend \$10. But if you don’t, five to ten years later you end up spending \$60 to \$100 to fix the problem.”

With that domino effect, he says, we cannot keep up with maintenance in an annual budget and thus need a boost in funding. The federal infrastructure funding could help in that regard, says Shi, but more is needed—possibly from states or the private sector.

“One thing I took away from my education as an industrial engineer is that no matter how good the system is, there’s always room for improvement,” Shi says. “We’ve talked about infrastructure for decades. We can’t keep kicking the can down the road.”

Shi says one big task is getting ideas from the lab to the streets. Unlike Europe and Asian countries such as South Korea, Shi says, industry in the United States often does their own R&D, while universities do theirs separately. He points to the example of self-healing concrete, which is already being commercialized in Europe, South Korea, and other places.

Partnership with companies such as Kiewit and Simpson Strong-Tie could really bolster the work, Shi notes. “They’re more experienced in bringing technology to practice. We need better coordination and collaboration between industry and academia.” ✱

ligence to more reliably determine when to intervene and prevent deterioration.

Riley Bender (’16 Civ. Eng.) is the district materials engineer for the ITD based in Lewiston. He coordinates with WSU researchers on the project, which wraps up this summer.

“We use the data that we collect on roads every year, on things like cracking, rutting, and smoothness of the road, to help us plan future paving projects. That’s something that every transportation department does as part of a requirement for federal funding,” Bender says.

The new model is a more advanced prediction of how pavement deteriorates. Asphalt will fail, he notes, and “if we can better predict the failure of pavements over time, we can apply the right fixes at the right times, which in turn helps us preserve the whole statewide highway system.”

Weather and traffic factor into the algorithms, too, allowing the ITD to take a targeted approach to their road fixes. In 2020,



Rethinking a virtue at long last

BY AYAD RAHMANI

OF ALL THE VIRTUES OF ARCHITECTURE, permanence ranks among the highest. Throughout history, cultures have relied on it to impress upon the future values of the past. This is why we know so much more about Egyptian kingdoms, Greek democracy, and Roman jurisprudence, than, say the Marsh Arabs of Iraq. Where the former built with brick and stone and later concrete—materials that outlast the onslaught of time—the latter did so using reeds, harvested from waters gathered at the confluence of the Tigris and Euphrates Rivers. The former is permanent, the latter inherently impermanent and subject to the perennial cycles of biological life.

It is said that the Roman emperor Nero, CE 37–68, intentionally set Rome on fire just so that he could rebuild it using materials more robust and lasting than the ones in place, and to match in architectural grandeur Rome’s imperial power. That story was never fully corroborated, except that it was well known that Nero hated Rome’s meek and rickety appearance. He wanted more.

Some claim the same happened in nineteenth-century America, when cities simply did not match in power and ambition the locomotion of industrial expansion across the country. Every year a new devastating fire seemed to consume yet another town, taking down rickety buildings and laying bare the potential for a new civilization. We know of the big one in Chicago, the “great fire” of 1871, which took place just about that time when the city was quickly acquiring power as the “economic hub of the great Midwestern hinterland,” as one historian put it. “Through the 1880s, lumber companies continued to cut white pines in the great north woods of Wisconsin and Michigan and float them by barge down Lake Michigan to Chicago ...” Old, flimsy buildings couldn’t do anymore; they lacked the ability to inspire the imagination and complement in strength and promise the activity on the ground. They had to go in favor of sturdier and more sophisticated structures. The fire was blamed on a cow which allegedly tipped a candle. If so, it is likely that someone with a mind for renewal coaxed the cow in that direction.

Closer to home, Spokane suffered the same fate in 1889, the fire there taking out 32 blocks, just in time for the great mining and lumber prospectors to set up shop and rebuild anew, with more permanent materials. Which they did, including an auditorium building and several great mansions to rival similar ones in Chicago. Investors took note, as far away as Holland, impressed by the plan underway. Of this change, one investor said, “I have never seen a small town which offers such an overwhelming impression of monumental buildings.” To be sure, it was not the fire that first inspired the Dutch to invest in the Inland Northwest, but the arrival of rail. Still it was the fire and the promise of building activity that kept the foreign bankers around.

Frank Lloyd Wright, the late iconic American architect, had a different take on longevity and permanence. Born to a maternal family steeped on Ralph Waldo Emerson and other transcendentalists, he believed that the essence of things lies not in their material presence but in the ideas that gave rise to them. This naturally meant the need to let go of things, precisely so that their conception can stay on, perhaps forever. Enjoy them while they last but also celebrate their demise.

Wright called the process “organic,” borrowing the term from the likes of Horatio Greenough, Emerson, Thoreau, and other nineteenth-century American thinkers. Like a plant, architecture, he thought, must grow from the seed out, feed a need and a culture, but then return to the soil. To think

Ayad Rahmani, professor of architecture, has been at Washington State University for almost 25 years. His book, *Frank Lloyd Wright and Ralph Waldo Emerson: Transforming the American Mind*, is due out this fall from Louisiana State University Press.

and do otherwise was to risk suffering the consequences of obsolescence, ridicule, and, perhaps worst of all, a culture too eager to turn everything into a spectacle. As arrogant as Wright may have at times seemed, the last thing he wanted was for his buildings to fall victim to commercialized worship. Better let buildings go than turn them into tourist attractions, putting the onus on the present to bear fruit. The design of a house should emanate from a clear understanding of current conditions, be they related to site, family, budget, and more. Once gone and those parameters are no longer valid, however, the house should subside, its power and worth now a function of the lessons it affords, not the style it had put up.

It is not for nothing then that, when asked which of his buildings he liked the most, Wright always answered “the next one,” the last one, and all previous ones, having already entered a process of decay. What worth they had, it was embedded in the way they inspired a new generation of buildings. It is also not by accident that when he came to design walls and roofs, he often made them paper thin, and this to invite nature in, quickening the process of erosion. Clients often complained, calling the architect at odd hours, unhappy about the fact that water had entered the building and ruined their dinner. Upon one such call, Wright simply asked the client to move his chair three feet to left and ended the call. Absurd and insensitive, absolutely, but profound nonetheless in the way that Wright urged Americans to contend with the forces of nature. Too often they resisted it, shutting the world out and inhaling bad air. To be sure, Wright never designed anything with the intended purpose that it should leak or fall apart, but he did, at least conceptually, challenge the distinction between inside and outside and with it modern resistance to weather and time.

In California, in the 1920s, he would quicken the effect and give us what in essence were architectural ruins. These were homes designed for modern and progressive clients but which looked like they had been around for 3,000 years, synonymous with some of the more prominent Mayan ruins in Mexico. Dubbed the “textile homes,” for the way Wright designed their cladding to look like woven fabric, they seemed to succumb to the march of time. The results were influential, impacting more than one architect around the world, most famously the Venetian architect, Carlo Scarpa, active throughout the middle of the twentieth century. No sooner did Scarpa come across Wright’s work early in his career than he adopted it as his philosophy back in Italy, appropriately so, given the historic context of that country. Unlike other modernists who produced polished works, using glass and steel, he followed Wright and gave us what amounted to ruins. At the Brion Cemetery, near Treviso, Italy, he would step the concrete back and forth in such a way to achieve that effect, as if the whole mass of the building had been eaten by time and restored back to nature.

In the end, and despite Wright’s passion for dissolution, his work had acquired a following, loved across the world and certainly America. As much as he wanted it to subside and return to the soil, a whole nation had rallied to protect and keep it around. In the 1980s a small group of scholars and architects, but also from other walks of life, would gather and form the F.L. Wright Building Conservancy, to preserve as many of the architect’s buildings as possible. Hard work on that front was soon underway in earnest, finding great accomplishment in 2018 when eight of Wright’s most iconic buildings were finally selected to become UNESCO World Heritage Sites, on par with the likes of Babylon, the Parthenon, and Chartres Cathedral.

Cultures have always had a contentious relation with architectural permanence: in one sense an important contribution to heritage and national identity, on the other a shackle from which to break and find intellectual freedom. America has had a particularly bad case of the conundrum, on the one hand seeking financial power and prestige through novelty, renewal, and indeed the end of things; on the other, doing everything it can to preserve history, forever insecure about its European counterparts’ oversized supply of which, justifiably of not.

In their book *On Weathering*, Mohsen Mostafavi and David Leatherbarrow start by writing, “No building stands forever, eventually everyone falls under the influence of the elements, and this end is known from the beginning.” How true and yet also how difficult to accept, not least because we need monuments to help us shape cultural identities. Perhaps, in the end, what matters is less permanence or impermanence but the manner with which we pace the transition between the two. Not all structures need to stay but all deserve a measured return to the earth, commensurate with the pace of those who had lived and come to rely on them. *



feature

STAFF ILLUSTRATION FROM STUDIO ALTERNATIVI

BY REBECCA PHILLIPS

In our Northwest forests...
for thousands of years ...
it has been ...

A burn- ing issue

Lightning shattered the hills surrounding the Colville Indian Reservation late in the night of July 12, 2021. By the next morning, wind-driven flames had devoured more than 10,000 acres near Nespelem in north central Washington.

“It hit so unexpectedly that it destroyed at least seven structures including family homes,” says Linda McLean, Washington State University Extension director for the Colville Reservation. “The fire killed wild horses on the range and livestock in pastures with nowhere to go. It burned within yards of the Tribal Government building and was very scary for everybody.”

The Chuweah Creek fire was one of five blazes ignited that night and led to the evacuation of the Nespelem community as well as the Confederated Tribes of the Colville Reservation Government Center. Sweeping across the reservation, the combined infernos eventually threatened the towns of Keller and Inchelium.

“The power was out for several days,” says McLean, who is an enrolled member of the Colville Confederated Tribes. Her work as an Extension educator includes helping the reservation respond to emergency situations.



“Many people lost the food stored in their refrigerators and freezers,” she says. “As Native people, this loss was even more significant as many of the traditional and cultural foods that they had gathered, picked, or hunted and fished were spoiled and could not be used.”

McLean says wildfires in this region have been steadily increasing. “In 2015, we had the largest wildfire we have ever seen on the Colville Reservation, burning 255,000 acres,” she says. “Well, in 2016, we got another large one, and they’ve continued every year since.”

SIMILAR STORIES ARE PLAYING OUT ACROSS THE AMERICAN WEST AS CATASTROPHIC WILDFIRES, DRIVEN BY A CENTURY OF FIRE SUPPRESSION POLICIES AND ESCALATING CLIMATE CHANGE, CONTINUE TO RAVAGE THE LAND.

Last January, the Biden administration unveiled a \$50 billion plan to help address areas most at risk of wildfire, including parts of Washington. The funding will double the amount of tree and vegetation thinning as well as the use of controlled burning. The move supplements a recent \$328 million investment by Washington state.

US Secretary of Agriculture Tom Vilsack told PBS *NewsHour* this new effort “will require a paradigm shift within the US Forest Service, from an agency devoted to stamping out fires à la Smokey Bear, into one that uses what Native Americans call ‘good fire’ on forests and rangeland to prevent even larger blazes.”

For thousands of years, Indigenous people in North America relied on controlled burns to shape their landscape and ensure a diverse productive habitat. Today, US federal and state forest management agencies are taking a closer look at those methods in hopes of better using prescribed fire as a tool to create more resilient forests.

It’s a familiar concept for Cody Desautel (x’98 Civ. Eng.), an enrolled member and the natural resource director of the Colville Confederated Tribes who oversees fire management within the 1.4-million-acre reservation. His program utilizes prescribed fires, mechanical treatments, forest health treatments, and targeted planting to help maintain a healthy landscape more in line with the practices of his ancestors.

“I started fighting fires in 1995 with the Forest Service and later worked for the tribe while going to college,” he says. “Back then, a big fire was 10,000 acres. If it was more than 10,000 acres, we considered it a rough summer for us.

“Then in 2001, we burned about 100,000 acres. Over the next 20 years, the biggest fires kept getting a little bigger and a little bigger. In 2015, we had a huge fire year that broke all the records here.

“We kinda hoped that was a once in a generation event and that things would slow down but that hasn’t been the case,” says Desautel. “Since 2015, we’ve burned almost 700,000 acres on a 1.4-million-acre reservation.

“Historically, the tribes burned a lot, often in the spring and fall, and having done that for many generations, they knew when and where that was appropriate. The number of acres burned over the last six years probably wouldn’t be that far outside historic fire frequency and intervals.”

But unlike those tribal burns, Desautel and McLean say today’s fires often crown in the trees and burn at such extreme intensities

that they destroy the vegetation as well as beneficial microbes and organic matter in the soil. High severity fires scorch the earth, killing everything in their path including the seeds needed to regrow a healthy forest. Often the plants that do survive are tough invasive weed species.

“SO, HOW DID WE END UP IN SUCH A DIRE SITUATION?” ASKS SEAN ALEXANDER (’18 FORESTRY, ’20 MS NAT. RES. SCI.), WSU EXTENSION FORESTER FOR NORTHEAST WASHINGTON IN COLVILLE.

“Wildfires are a function of the climate, weather, and fuels,” he says. “Look at the Great Fire of 1910 that burned 3 million acres in the Selkirk and Bitterroot Mountains.”

That August, one of the driest in memory when snows melted early and the spring rains never arrived, “America’s worst wildfire” tore through northern Idaho and western Montana, darkening skies with smoke and soot as far away as Boston and Watertown, New York.

According to a US Forest Service article, “The Great Fire of 1910 burned its way into the American conscience as no other fire had done. Not ever before had a forest fire been given headlines so big or so black. It managed to burn its way through public indifference and emerged as a charred but positive landmark along the road to forest protection.”

Indeed, the 1910 conflagration helped transform wildland firefighting into a profession that today battles blazes with war-like intensity.

“The fire happened during the height of industrialization when railroads and construction were booming,” says Alexander. “People realized wood was a natural resource they needed to manage and maintain. Along with the understandable fear for human safety, they thought, ‘We need to stop fires and control these resources so we can continue to harvest wood.’

“So, in 1935, the National Forest Service implemented the informal ‘10 a.m. policy,’ which decreed that every fire will be suppressed by 10 a.m. the day following its initial report,” he says. “They built watch towers, had planes fly in and drop water, and got crews out building fire lines with chainsaws and Pulaskis. It was all new at the time and since then, we’ve become very good at it.”

The message was reinforced by the Smokey Bear campaign, which debuted in 1944 with the slogan, “Care Will Prevent 9 out of 10 Forest



LINDA MCLEAN (PHOTO ROBERT HUENEN)

Fires.” It was later personalized to, “Remember ... Only YOU Can Prevent Forest Fires.”

Alexander says the policy essentially went unquestioned until the 1970s, arguing that it “never really became a headline issue until the turn of the twenty-first century when fires started ramping up and communities were once again heavily impacted by smoke and safety concerns.”

He says recent studies show that removing fire from the landscape over the last century has resulted in a 100 percent increase in the number of trees in certain regions. Those trees, however, are skinny, small, and closely crowded. At the same time, early logging practices systematically removed the largest trees which are the ones old enough to have developed fire-resistant features like thick bark.

“Now you have dense forests with very thin bark,” says Alexander. “They can carry a fire both from the ground to the tops of the canopy and from one side of the canopy to the other. You have both vertical and horizontal fuel connectivity.

“Then, you see climate change increasing the likelihood of an extended summer season when moisture is low and fuels are primed to burn. Then, a majority of the fire starts are from humans, whether that’s due to escaped burns, campfires, powerlines, or railway strikes.

“Add that all together and our forests are primed to burn,” he says. “All you need is a match.”

DESAUTEL SAYS THE HIGHLY COORDINATED FIRE SUPPRESSION APPROACH USED BY STATE AND FEDERAL AGENCIES ENABLES THEM TO CATCH MOST FIRES WITHIN THE FIRST 24 HOURS.

“The problem is when we don’t catch a fire during initial attack, it’s usually because we’re in the worst conditions: the hottest weather, the lowest humidity, the highest winds,” he says.

“When we have these kinds of conditions, you have a disproportional amount of very destructive, high severity fire compared to what would’ve been there historically—when tribes burned on the shoulders of fire season, those June and September fires in our region.

“We used to see consumption of fuels in the understory but not necessarily in the over-



CODY DESAUTEL (PHOTO MADELINE OSTRANDER/UNDARK)

story. And we would’ve seen a different tree species composition in pre-contact forests—those species adapted to fire like Ponderosa pine and Western larch would’ve survived and done well. And there would be less Doug fir.”

Desautel says a 1958 forest inventory showed the Colville Reservation was once primarily populated with pine trees and fires typically burned through those habitat types about once every fifteen years.

“Now, Doug fir is the most prominent species on the reservation,” he says. “For the last 10 years, we’ve been trying to reverse that trend through our forest management program. It took a century to get here but we’re making progress.”

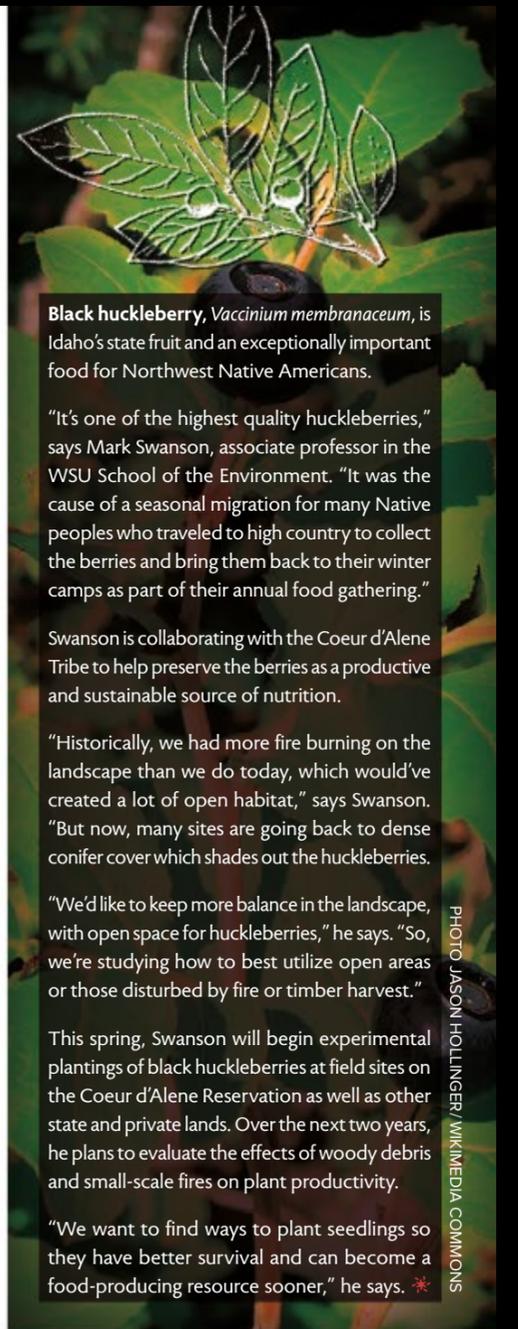
The Colville Tribe uses both prescribed fire and mechanical fuel reduction treatments to decrease underbrush, debris, small trees, and other combustible fuels in the area.

“We also do a lot of forest stocking and species manipulation to ensure we have fire-resistant species on the landscape,” Desautel says. “We want to create that mosaic in age and species that would’ve existed before.

“We know historically, there would’ve been big trees but in lower densities—primarily species like larch and pine which are drought and disease resistant and very fire tolerant. But we’d also have open patches with huckleberries and other culturally significant species. We’re trying to ensure our reservation landscapes are resilient now and into the future with considerations for a changing climate.

“So, when we have a large fire event, the post-fire conditions will more closely mimic what you would’ve seen historically,” he says. “By comparison, when you see a large fire on federally managed land, a big percentage of that fire is high severity. That won’t necessarily be the case here since we’ve changed our forest management program.”

Their efforts are a race against time, however, as climate change continues to equal



Black huckleberry, *Vaccinium membranaceum*, is Idaho’s state fruit and an exceptionally important food for Northwest Native Americans.

“It’s one of the highest quality huckleberries,” says Mark Swanson, associate professor in the WSU School of the Environment. “It was the cause of a seasonal migration for many Native peoples who traveled to high country to collect the berries and bring them back to their winter camps as part of their annual food gathering.”

Swanson is collaborating with the Coeur d’Alene Tribe to help preserve the berries as a productive and sustainable source of nutrition.

“Historically, we had more fire burning on the landscape than we do today, which would’ve created a lot of open habitat,” says Swanson. “But now, many sites are going back to dense conifer cover which shades out the huckleberries.

“We’d like to keep more balance in the landscape, with open space for huckleberries,” he says. “So, we’re studying how to best utilize open areas or those disturbed by fire or timber harvest.”

This spring, Swanson will begin experimental plantings of black huckleberries at field sites on the Coeur d’Alene Reservation as well as other state and private lands. Over the next two years, he plans to evaluate the effects of woody debris and small-scale fires on plant productivity.

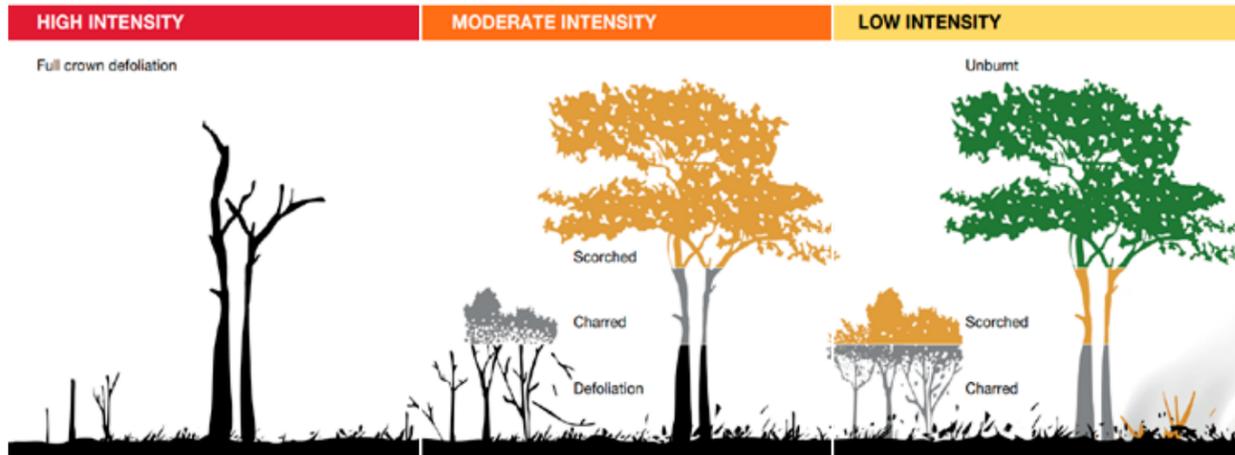
“We want to find ways to plant seedlings so they have better survival and can become a food-producing resource sooner,” he says.

PHOTO JASON HOLLINGER/WIKIMEDIA COMMONS



AFTER THE 2021 NESPELEM FIRE (PHOTO LIV STECKER)

Fire severity and intensity



THE SEVERITY OF A FIRE DEPENDS ON ITS INTENSITY AND THE TYPE OF VEGETATION THAT IT BURNS. (ILLUSTRATION ANDREW SULLIVAN/CSIRO)

A BURNING ISSUE

or exceed previous predictions and the West lingers in the grip of a once-every-1,200-year megadrought.

Desautel says about eight years ago, it was projected there would be a 250 to 400 percent increase in wildfire burn acres for their region over the next four decades. But the fires are already surpassing those yearly forecasts.

He says the Biden administration's \$50 billion investment in thinning high-risk firesheds will be extremely helpful for tackling the large backlog of treatments needed across the West.

"It's a huge first step but, according to Washington State Department of Natural Resource's 20-year forest health strategic plan, we have at least 2.7 million acres of forest land in eastern Washington alone that are in need of restoration treatment. A one-time funding boost catches us up, but we need sustained funding if we want to have the capacity to maintain the landscape as it looked historically."

The Colville Tribe would prefer to do controlled burning on the reservation throughout the year, but Desautel says they are limited by funding from the Bureau of Indian Affairs, smoke and air quality regulations, available burn windows, and a landscape complicated by an ever-growing number of homes and other structures.

"Early in my career, a few tribal employees would go out and burn areas at the right times," he says. "Now, due to legal liabilities, we need to include most of our fire management staff for contingency in case the prescribed fire gets out of control. So, it's not particularly productive. We haven't found a way to get regulatory changes made to give us the flexibility to burn more acres."

Saddled with today's massive burn deficit, Desautel believes the West will continue seeing uncontrolled wildfires on the landscape for years to come.

LOOKING AT THE PROBLEM FROM A NATIONAL LEVEL, DESAUTEL POINTS TO THE WILDERNESS ACT OF 1964 WHICH WAS SIGNED INTO LAW BY PRESIDENT LYNDON JOHNSON.

"People may not understand that, from the Indigenous perspective, tribes were active land managers," Desautel says. "For example, in the act, they want forest conditions to go back to or be retained in pre-European conditions when it was untrammled by man. That's an unrealistic statement made in ignorance or a lack of education about how many tribal people lived here prior to colonization."

He says Europeans vastly underestimated the population of Native peoples before the West was settled. Research shows that diseases like smallpox, influenza, and measles traveled faster than the wagon trains and, in some areas, killed 80-90 percent of Indigenous people.

As a result, European settlers saw fewer Indians left on the landscape and less burning than they would have seen just a few decades prior.

"So, I think there's a big disconnect between what modern science considers natural ignition—lightning fires—versus how much Native burning actually happened," says Desautel. "We don't account for those Native ignitions when we look at forest disturbance regimes."

He recently took part in a forest management planning session for the Colville National Forest that was said to be modeled on historic fire regimes and fire return intervals.

"I said 'Well, where are those ignitions coming from?' Desautel says. "Historically, there would've been a lot of Natives on the landscape who lit the highest percentage of those fires."

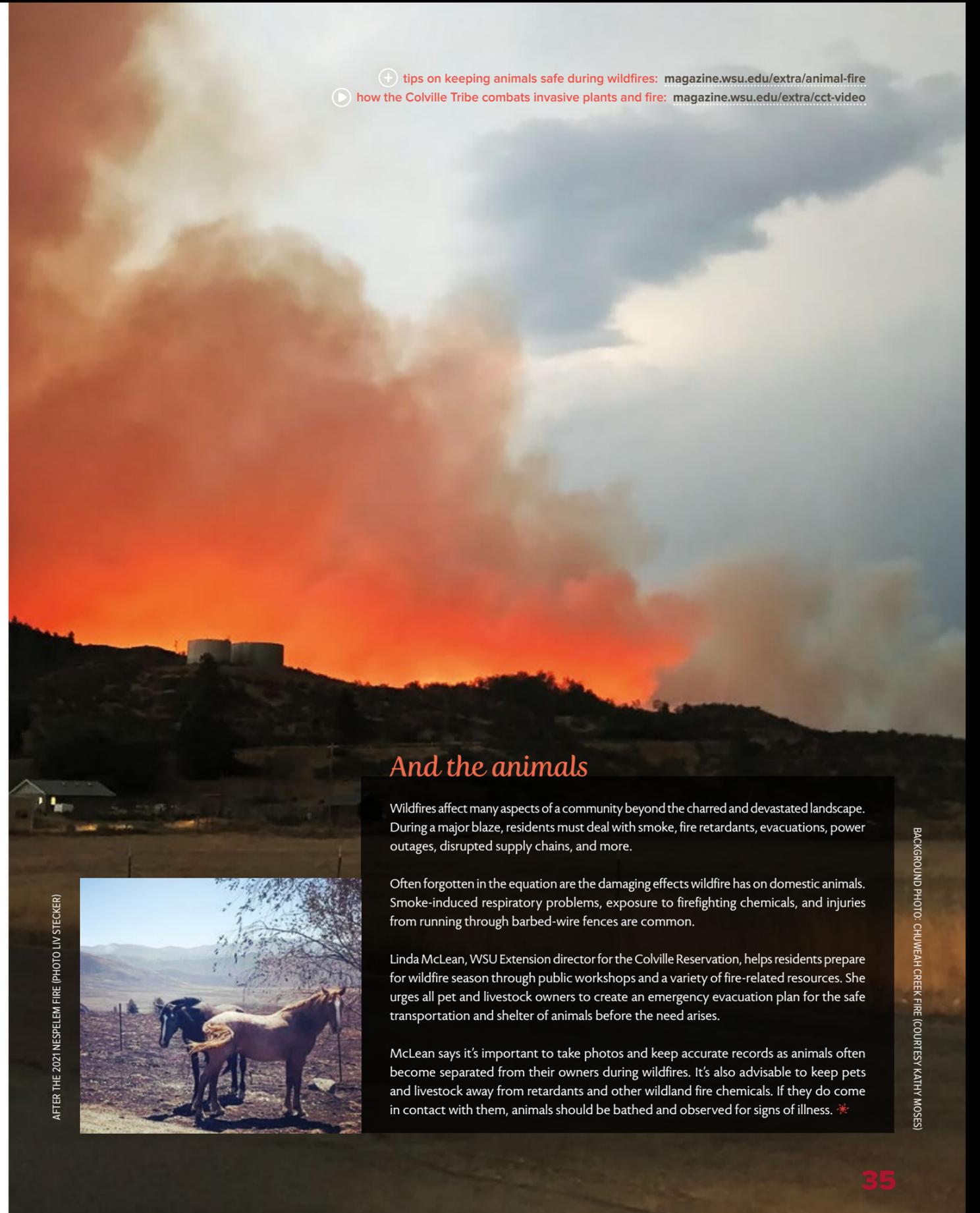
"Since we're no longer allowed to do that, how are you going to mimic that historic regime? Lightning won't get us there—there's simply not enough to burn the acres we need to retain those historic fire intervals."

"No one had an answer for that," he says, "I'm not sure anyone in the West does." *



COURTESY SEAN ALEXANDER

tips on keeping animals safe during wildfires: magazine.wsu.edu/extra/animal-fire
 how the Colville Tribe combats invasive plants and fire: magazine.wsu.edu/extra/cct-video



And the animals

Wildfires affect many aspects of a community beyond the charred and devastated landscape. During a major blaze, residents must deal with smoke, fire retardants, evacuations, power outages, disrupted supply chains, and more.

Often forgotten in the equation are the damaging effects wildfire has on domestic animals. Smoke-induced respiratory problems, exposure to firefighting chemicals, and injuries from running through barbed-wire fences are common.

Linda McLean, WSU Extension director for the Colville Reservation, helps residents prepare for wildfire season through public workshops and a variety of fire-related resources. She urges all pet and livestock owners to create an emergency evacuation plan for the safe transportation and shelter of animals before the need arises.

McLean says it's important to take photos and keep accurate records as animals often become separated from their owners during wildfires. It's also advisable to keep pets and livestock away from retardants and other wildland fire chemicals. If they do come in contact with them, animals should be bathed and observed for signs of illness. *



AFTER THE 2021 NESPELEM FIRE (PHOTO LIV STECKER)

BACKGROUND PHOTO: CHUWEAH CREEK FIRE (COURTESY KATHY MOSES)



- 37 alumni profiles
- 42 new media
- 43 alumni news
- 45 class notes
- 47 in memoriam



FROM TOP: ORIGINAL WASHINGTON STATE COLLEGE ENTRANCE AS SHOWN ON A 1915 POSTCARD (COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS). THE WSU WELCOME ARCH BELOW SLOAN HALL IS A REPRODUCTION OF THE ORIGINAL ARCH (@WSPULLMAN/FACEBOOK).



Craig Nishimoto performs an annual physical examination on a Shiba Inu named Sabu at the Paradise Animal Clinic in Kalaheo, Kauai. Courtesy Craig Nishimoto

All creatures, far and near

BY JOSH BABCOCK

The ding alerting **Craig Nishimoto** ('82 Bacterio., '83 Vet. Sci., '84 DVM) of a new Facebook message prompts him to quickly check the social media site. The communiqué could be related to an animal in need some 2,600 miles away on a small island chain in the South Pacific.

For much of the past decade and throughout the COVID-19 pandemic, American Samoa has struggled to retain a practicing veterinarian. The absence has left animals in need of

veterinary care and Nishimoto's Facebook Messenger dinging more and more often with notes from government officials seeking advice on everything from skin conditions to respiratory infections. Nishimoto didn't always operate over Facebook.

Before the pandemic, the Kauai, Hawaii-based veterinarian and his family made a handful of trips to American Samoa in support of animals and public health. During his first trip, his family hosted a low-cost, four-day spay and neuter clinic. They spayed or neutered 80 animals, examined another 16, and performed two amputations. Nishimoto also helped two families receive health certifications so their pets could enter the US mainland.

This work was partly why he was recently awarded the Washington State University Alumni Association's highest honor: the **Alumni Achievement Award**. Nishimoto was nominated for the award by Alofa mo Meaola Love for Animals, a grassroots non-profit alternative humane society dedicated to the welfare of animals in American Samoa.

This work is also why many on the island say Nishimoto is *aiga*, meaning "family" in Samoan.

"I enjoy giving back to the community, both locally and throughout the world," says Nishimoto, a dedicated Rotarian at Poipu Beach. "I'm selfish; it gives me joy to help others."



Nishimoto participates in a Kauai beach cleanup through Rotary. Courtesy Craig Nishimoto

His Rotary Club raised enough money to construct and manage a preschool in Cambodia's Pursat province. Now, when children in the small village are done with their daily classes, they get extra education and nourishment, and a crash course in English, too.

"We had been doing clean water projects and bringing dictionaries to students over

there, but we wanted to do a more lasting project," Nishimoto says. "Part of our preschool program is that the students have a high-protein breakfast, to give them a good meal."

While the urge to give back has led Nishimoto to humanitarian work, it's also the same thing that attracted him to veterinary



Above: Nishimoto in 1990. **Below:** Nishimoto (at left in photo) in Cambodia in 2017 at a school built with Rotary Club assistance. Photos courtesy Craig Nishimoto



medicine more than four decades ago. That's when he first picked up late veterinarian James Herriot's book *All Creatures Great and Small* during his junior year of high school.

"I really liked the idea of helping people in need and animals that couldn't help themselves. That's never changed," Nishimoto says.

He hopes to pass on the trait to his two children, **MATTHEW** ('21 Neurosci.), and **CHRISTINE** ('17 Microbiol.), who has been at WSU since 2013 and is in her final year of WSU's doctor of veterinary medicine program. The plan is for her to take over the family practice, Paradise Animal Clinic, the

A fish tail makes quite a splash

BY ADRIANA JANOVICH

They were instantly enamored. The pitcher, in the shape of a fish with its tail curled up behind its head, was charming enough. Then there was the fanciful sound of water laughing as it poured from the pot.

"We just fell in love with it," says Matt Ellison ('92 Hotel and Rest. Admin.).

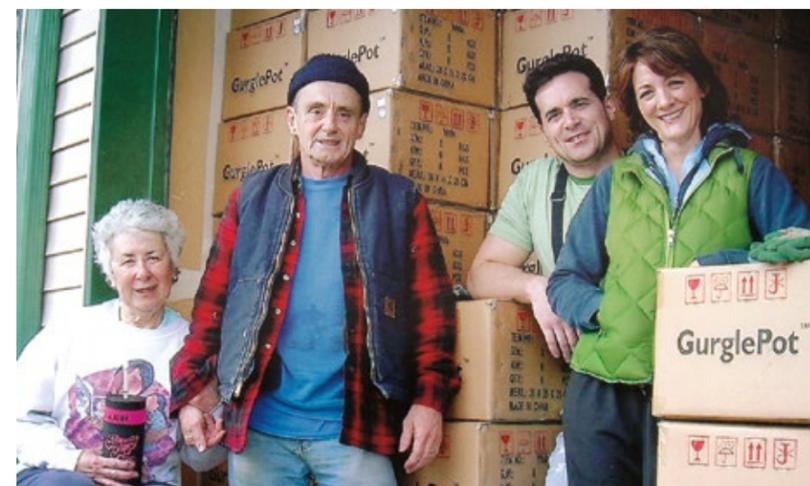
He and his wife, Jennifer "Jen" (Dembiczak) Ellison ('90 Busi.) were in France for a family wedding when they first encountered the novelty pot, an antique work of functional folk art. Gluggle or glug-glug jugs date to at least the mid- to late-nineteenth century. Their signature gurgling sound is produced when air trapped in the pitcher's hollow, fish-tail handle releases as the vessel returns to an upright position.

When the Ellisons first saw—and heard—one in October 1995, they were delighted by its inherent whimsy. They were staying in a village south of Dijon. They didn't speak French. And their host family didn't speak English. To help fill long silences during dinner, Matt found himself repeatedly refilling his water glass to unleash the giggling sound of the gurgling pot—and smiles from everyone at the table.

Back home in Western Washington, he says, "we couldn't find any similar pots being sold in the States, so I decided to make my own." Matt designed a contemporary rendering of the vintage pitcher.

Since then, the Ellisons have sold more than a million gurgling, fish-shaped pitchers. Their GurglePots are available in the United States, Canada, and Australia. Last year, they were featured on the *New York Times* lists of "31 of the Best Housewarming Gifts" and "The 71 Best Gifts Under \$50."

Top-selling colors are cobalt, aqua, white, and bright red. And "I Spy" moments keep getting shared by fans on GurglePot's Facebook page. A peacock blue GurglePot appeared



Above: Matt and Jennifer Ellison pose with boxes full of GurglePots and Matt's parents Russell and Lanita Ellison. **Below:** GurglePots come in myriad colors. Photos courtesy GurglePot



on the shelf behind Stephen Colbert when he was hosting *The Late Show* from home early in the COVID-19 pandemic. Another GurglePot appeared in the fourth episode of the PBS series *Dishing with Julia Child*. Still another appeared in season four of the Hulu original series *The Handmaid's Tale*. And, on January 15, actor Mandy Patinkin commented "My favorite thing" and "Is there any better invention?" on an Instagram video of himself using a GurglePot.

Matt created the prototype for GurglePots at the kitchen table, drawing on mold-making skills he learned in an elective sculpture class as a college freshman. "It's funny how they almost didn't come to be. I sculpted the positive and made it into a negative to make the plaster mold, and I learned how to do that through a WSU class," taught by sculptor Jack Dollhausen, now a professor emeritus of sculpture.

Matt shelved the project for 10 years while the couple, who met at WSU and dated throughout college, raised their boys, then a toddler and a baby. When Matt's dad was cleaning out his garage, he found the original sculpture and mold, and asked him what he should do with them.

"The kids were older so I had more time to work on the pot," says Matt, who fashioned a few more molds by hand before perfecting the design. "I was doing it all by eye. I didn't do it with CAD," computer-aided design. "Now you could use 3-D printing to create it and make it."

He glazed and fired the first one at a U-paint pottery shop. Unlike vintage versions, which typically feature intricate fish scales and other ornate details, his embraced clean lines and a smooth finish.

The GurglePot got its "big break" in 2006 at a gift show at New York City's Javits Center, says Jen, whose background is in marketing and publicity. "An editor from *Coastal Living* stopped by and did a story on us, and it just kind of exploded from there."

So many orders came pouring in that Matt had to quit his job in agricultural sales with no notice. Two more WSU alumni—Matt's mom and dad, Russell Ellison ('65 DVM) and Lanita (Nutt) Ellison ('62 Ed.)—helped package pots in the Ellisons' Lake Tapps garage to meet demand.

Today, GurglePot has a warehouse and office in Pacific and a team of about six employees. Most sales come from the nearly 2,000

small, independently owned boutiques across the country that carry and demonstrate the product. "It makes people smile when they try it out," Jen says—just like it did for her and Matt in France nearly 30 years ago.

Matt's creativity didn't stop with the GurglePot. More recently, he designed another sound-making culinary product: a bird-shaped wine-bottle topper that makes a "chirping" sound while pouring. His patented Chirpy Top hit the market in 2015.

His advice: Never underestimate the power of an elective. "It gets people out of their comfort zone," he says. "That's the beauty of going to college and broadening your knowledge. At some point in life that random class could become the most important one you ever took." *

Taming those tight muscles

BY DANIEL P. SMITH

As a Washington State University soccer player in 1990, a gimpy Spring Faussett walked into the Cougars' athletic training room. With persistent tightness in her quadriceps hampering her performance on the pitch, Faussett pleaded with an athletic trainer for help.

"Is there anything we can do?" a hopeful Faussett inquired.

The trainer invited Faussett to sit, and then proceeded to press her thumb deep into Faussett's quad. Faussett shrieked as pain radiated outward from the trainer's forceful pressure—a practice now widely known as trigger point therapy. Within minutes, Faussett's muscle tightness subsided.

"The memory of how fast muscles can be fixed stuck with me," Faussett ('92 Comm.) says.

So much so, in fact, that Faussett transformed that idea into a global business.

In 2005, the Spokane native combined PVC pipe and insulating foam purchased from a local hardware store with bicycle grips to



Spring Faussett. Courtesy Tiger Tail USA

create a sleek rolling pin-like device athletes could use to relieve muscle knots, aches, cramping, spasms, and stiffness. Through additional iterations, Faussett, a naturally curious soul who began her WSU academic career in mechanical engineering before switching to communications and marketing, perfected the mechanics of the grip, maximized the spindle, and experimented with different foams to balance comfort and effectiveness.

Satisfied with her design, Faussett constructed 125 units and took them to the 2006 Seattle International Bicycle Expo to gather feedback and, hopefully, notch a few sales.

"I sold every single one," Faussett beams.

With the portable foam roller massage stick as its flagship product, Tiger Tail USA was born. Faussett hustled to attend meetings and conventions for athletic trainers, physical therapists, chiropractors, and other wellness pros.

"These were people who had a bigger audience than I could ever reach by myself," she says. "Plus, I knew they'd see the benefits."

Soon, college and professional athletes were using the Tiger Tail massage stick. On television, Faussett would catch a baseball player holding it in the dugout or a football player working his calf on the sidelines.

When Tiger Tail reached \$5,000 in monthly sales in 2008, Faussett, who made the first 20,000 massage sticks in her garage, ditched her marketing gig and committed herself fully to Tiger Tail. She developed new products like a handheld muscle "knot buster"—the aptly named Knotty Tiger—and the Tiger Ball Massage-on-a-Rope tool to

attack back knots. She co-authored a book called *Happy Muscles* to empower do-it-yourself muscle maintenance and secured shelf space in major retail outlets like Target, REI, Costco, and CVS.

Today, the 51-year-old Faussett leads a company with more than 10 granted and pending patents, a 12,000-square-foot home facility in Kent, and routine year-over-

year growth. Tiger Tail's diverse assortment of physical therapy products, more than half of which are made in the United States, are sold in more than 50 countries, and are used by elite athletes as well as everyday people seeking improved health, flexibility, and mobility.

"Muscles talk and we listen," Faussett says. "That's why we've been able to capture 15 years of steady growth and achieve something beyond my wildest dreams." ✨

Nock, nock

BY ADRIANA JANOVICH

Andrew Harding ('05 MBA) and his friend Stephen Amell were road-tripping from Los Angeles to Oakland to watch the Toronto Blue Jays play when they decided to make a quick detour.

Harding convinced Amell to stop in Paso Robles to do a little wine tasting. The Canadian actor, who would soon become known for portraying Oliver Queen—aka Green Arrow—on the CW show *Arrow*, had never been.

Their short side-trip turned into a three-day visit. They never made it to the game. But, at the end of their impromptu May 2012 adventure, Amell turned to Harding with a question that changed their lives. "Hey man, how do we do this all the time?"

By the end of that year, they founded Nocking Point Wines. Now, 10 years later, it's grown into a primarily subscription-based

business that ships custom, celebrity-curated blends to nearly 10,000 members and more than 100,000 individual customers each year. While most sales are online, Nocking Point also recently opened a tasting room in downtown Walla Walla.

"All of our wines are really approachable, and they have really interesting stories behind them," says Harding, a former MTV executive who founded the music licensing start-up SourceAudio.

The story behind Pink Wine for Dudes, one of Nocking Point's flagship offerings, is "pretty simple. We'd always had our buddies over for football, and they'd laugh when we'd have rosé and they'd have beer. When Stephen and I made our first rosé we thought we should have some fun and turn it on its head and say, hey, this is OK for guys to drink. It was a reaction to the looks and the comments we got from our buddies who are beer drinkers."

Harding grew up in Walla Walla next door to Chris Figgins ('96 Hort.), president and winemaking director for Figgins Family Wine Estates. His parents, Gary and Nancy, founded Leonetti Cellar, the oldest winery in the Walla Walla wine region.

Nocking Point started small, with not quite 1,700 bottles of Year One, a Bordeaux-style blend made by Marie-Eve Gilla, founder and then-winemaker of Walla Walla's Forgeron Cellars. Harding and Amell affixed the labels by hand, and Amell posted about the wine's availability on Facebook. It sold out within 24 hours. "Our problem was not selling the wine but having enough product," Harding says. "We're very lucky."

He first connected with Amell soon after the Hollywood hopeful drove to LA from Canada in 2009. Harding's wife, Jen, is Canadian, and Amell found her on Facebook. All three met up at a sports bar, and, Harding says, "He and I just hit it off."

Harding was still at MTV, where, he says, "I was a VP by 29 years old. There weren't many at that age at that level. And I attribute some of the knowledge and confidence I gained by going through the MBA program at WSU. It was an absolute turning point for me. I was challenged in ways I'd never been challenged before."

When it came to their wine venture, the friends "could play to our strengths," Harding



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WINE COUNTRY ONLINE AUCTION May 10-15

GALA ONLINE AUCTION August 9-13

WINE COUNTRY VINTNER DINNERS

WINEMAKER PICNIC & BARREL AUCTION August 12

May 12 – J. Bookwalter Winery

May 13 – Fidélitas Wines

May 14 – Col Solare Winery

GALA August 13

BENEFITING
Seattle Children's
WSU Viticulture & Enology Research
The AWW Industry Grant

AuctionofWaWines.org

says. "Mine is technology, and his is in acting and having a fanbase."

Nocking Point produced its first vintage in 2013 and started collaborating with celebrities in 2015, partnering with friends such as Jared Padalecki, star of the CW show *Supernatural*. Since then, collaborators have included actor Jason Momoa, TV and radio personality Adam Corolla, actress

Ginnifer Goodwin, wrestler Chris Jericho, celebrity couple Ashton Kutcher and Mila Kunis, and more.

Kutcher is an investor and member of Nocking Point's board of directors. Skateboarder Tony Hawk is on the advisory board. So is wrestler Cody Rhodes and former pro wide receiver Brandon Marshall. Both have been consulting winemakers for the brand.

Most of the grapes and juice that Nocking Point uses comes from the Walla Walla and Columbia Valleys. Nocking Point partners with winemakers such as Justin Wylie, owner of Va Piano Vineyards, and Sean Boyd, owner of Rotie Cellars, to make the wines. Boyd crafted the first two offerings of the recently launched line of Gametime wines, a pre-season edition red and a

pre-season edition rosé. Since last fall, Gametime wines have been available at BevMo and through GoPuff, a food-and-alcohol delivery app.

Proceeds from Nocking Point's Outside Wine, a red blend selected by Kutcher and Kunis, help fund charities such as Hawk's The Skateboard Project, which helps young people build skate parks in underserved communities, and Thorn, co-founded by Kutcher and Demi Moore. It builds technology to defend children from sexual abuse. Outside Wine follows Quarantine Wine, an Oregon pinot noir selected by Kutcher and Kunis to raise funds for charity during the early part of the COVID-19 pandemic.

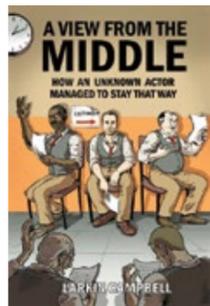
Before the pandemic, Harding and Amell, both based in the LA area, would travel several times a year to Walla Walla, where Harding's twin sister, Sarrah Harding, manages customer service, fulfillment, and the tasting room.

In 2020, the company received more than 130,000 orders, and produced and sold nearly 30,000 total cases.

"Walla Walla makes world-class wine," Harding says. "I'm proud to be part of it, that's for sure." ✨



From left: Andrew Harding and Stephen Amell. Courtesy Nocking Point



A View from the Middle: How an Unknown Actor Managed to Stay That Way
LARKIN CAMPBELL '91 COMM. 2021

Clint Eastwood. Tom Cruise. Steve Carrell. Larkin Campbell has crossed paths with them and more. But, as the title of his memoir suggests, you've likely never heard of him. And you might not even recognize him, unless you are a fan of the 125th episode of *The Office*, in which he plays Coach Shane, husband of the girlfriend of main character Michael Scott.

Campbell has made a career of playing non-recurring TV roles and serving as a movie stand-in. He's written screenplays that haven't sold and short films seen by, he says, "hundreds," plus this book and several articles about "life as an actor who's been relegated to staying home with the kids." He has three: twin sons and a daughter.

Campbell moved to Los Angeles—or, as he calls it, "the land of undiscovered actors"—right before getting his degree. He drove down for an internship at *Entertainment Tonight*, where he sometimes brought Mary Hart and Leeza Gibbons breakfast. He more or less never left La La Land.

It's where he met his wife, assistant director Maria Battle Campbell, who's working on the *Avatar* sequels. While her career climbed, his went up and down, and—for long periods of time—flatlined. He once went 28 auditions in a row without landing a gig. Other times, according to IMDb, he scored roles like Maintenance Man No. 1, Hospital Father, Idiot Golfing Friend, and Desk Officer. In 2009, he booked one job.

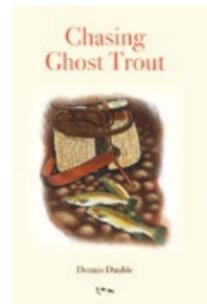
Campbell deals with the rejection, disappointment, and anxiety of life as a struggling,

"nonathletic, average-looking" actor with humor and by throwing himself into his two favorite roles: husband and father. His amusing memoir details 30 years of adventures in the industry—from a young Hollywood hopeful to a veteran of auditions, casting calls, call-backs, and set-backs.

A View from the Middle offers a lively look behind the scenes. Campbell, who sometimes refers to himself in third person, is comical, self-deprecating, and full of praise for his favorite stars. Readers might sense there's more to some of the stories, such as anecdotes from when he was an assistant to Roseanne Barr and Tom Arnold.

Still, Campbell writes, "This business is nothing short of magical. There is no other art form like it ... The joy is in the journey ... and although at times, my career felt elusive, it's been a big overblown joy for this guy. ... If success means you love where you are and what you have done, then I've won the California State Jackpot Lottery ten times over."

—Adriana Janovich



Chasing Ghost Trout
DENNIS DAUBLE '78 MS BIOL. FISHHEAD PRESS, WITH KEOKEE BOOKS: 2021

In this deeply personal memoir, Dennis Dauble moves quickly through the stages of his life, starting with a cancer diagnosis in 2010 when he was 59, then jumping back to his earliest memory: fly fishing for fat-bellied trout with Grandpa Harry and making his first catch.

"Hand me a fly rod and once again I am a skinny little kid with a handful of chewed-up flies and something to prove," writes Dauble,

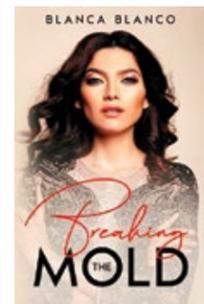
who reminisces about growing up in a tiny Oregon town in the 1950s and 1960s with four siblings—all of their names start with D—plus Dagwood the dog, a border collie.

Dauble documents five decades of family and fishing for wild trout in Oregon's Blue Mountains. Nostalgia runs deep. There's joy, of course, but plenty of heartbreak, too. Dauble doesn't shy away from the tough stuff, including his fight with cancer, loss, and his last fishing trip with Grandpa Harry, who looms large in his memory.

A former fisheries scientist who also taught fish ecology, biology, and management at WSU Tri-Cities, Dauble married young and became a father at 21 with the birth of daughter Diana. Son Matthew Dauble ('98 Fine Arts) later drove the family's beloved Ford Ranchero to WSU Pullman. Wife Nancy remains his "best friend for over 50 years and counting."

You don't have to enjoy fly fishing or have had a small-town Pacific Northwest childhood to enjoy this 206-page softbound collection of essays. Dauble's latest book, his fifth, resonates with those who feel a wistful affection for the past. His approachable, casual, relatable style makes for easy reading.

—Adriana Janovich



Breaking the Mold
BLANCA BLANCO '03 PSYCH. BRITON PUBLISHING: 2021

When she was nine and newly arrived in Washington state, Blanca Blanco performed scenes with her sisters in the garage in which they lived. Putting on these "homemade plays," the self-made starlet writes in her new memoir, "was a way to escape our current

life." Acting, she notes, "gave me a sense of strength."

The garage had no hot water and no bed, only a hot plate and broken couch. "I often went to sleep wearing two coats and three pairs of gloves," Blanco writes. "We huddled up to keep warm, and it was during those nights that I made a promise to myself."

Born in California, where she lived until she was three, Blanco grew up in Mexico until moving to Chelan with her parents and siblings. She's the second oldest of five, three sisters bookended by two brothers. Her father, a policeman in Mexico, picked apples in America. Her mom watched other people's children.

"My oath to myself was that this would be the only time in my entire life that I would have to live like this," she writes. "I would do whatever it took to break the mold and in doing so, I would make my life a success."

Today, Blanco is an actress and model who often appears in films and on the red carpet with her partner, actor John Savage. She penned her autobiography during the COVID-19 lockdown and ongoing pandemic in hopes of motivating and inspiring others. "We have the power to change our own narrative," she writes.

She discusses her childhood—growing up in poverty, learning to speak English, dealing with her dad's machismo and abuse—with candor but without self-pity. Her book—part personal experience, part self-help guide—is a story of strength and survival, resolve and resilience. Drawing on her psychology background, Blanco offers tips for overcoming grief, trauma, and anxiety. She also shares her struggles.

Perhaps the most gripping story she shares is her harrowing drive to flee 2018's Woolsey Fire. After narrowly escaping the blaze, she learned from TV news coverage that the Malibu home she shared with Savage was destroyed. When she later viewed the wreckage, she writes, "I found my degree from Washington State University. It had fallen off the wall and had been buried under a heap of rubble, which saved it from being too damaged."

Her father, who would, she writes, sometimes hit her with a horse whip, belt, or shoe, tried to dissuade her from going to college. "College," he would tell her, she writes, "is not for girls like you."

For a complete list of Member Appreciation Month events and benefits, visit alumni.wsu.edu/MemberMonth.

Blanco attended Spokane Falls Community College on scholarship, at one point working three part-time jobs to put herself through school. When she first arrived in Spokane, "I had nowhere to stay and lived in my car until I eventually found two roommates."

At WSU, she was a self-described "happy nerd," more likely to be found in the library than at a party. She includes her graduation photo in her book with the caption: "I was so proud of my achievement."

After finishing her master's degree in social work at Eastern Washington University, Blanco moved to Los Angeles to pursue acting and modeling. She worked in hospice care while going to auditions, taking classes at The Groundlings Theatre and School, and studying under Gordon Hunt, father of actress Helen Hunt.

"I am a strong believer that education is key to breaking the cycle of poverty and that coming from poverty does not have to dictate your future," she writes. "I believe anyone can overcome and achieve goals with tenacity, dedication, and commitment. And while it can be challenging, it's always possible—as I proved with my own education."

—Adriana Janovich

BRIEFLY NOTED

Here Comes Trouble
JANET BREUER '04 NURSING, ILLUSTRATOR, SARAH HOYLE TUCKER BOOKS: 2021

Ridge and Tucker are two happy dogs until Trouble the Cat comes to live with the family. Narrated by the canine pair, the comical adventures of bringing a new pet into the home sets up some tips to make the adjustment easier.

Mastering Voice Interfaces: Creating Great Voice Apps for Real Users
ANN THYMÉ-GOBBEL '85 LINGUISTICS APRESS: 2021

This informative guide helps readers learn the core voice design principles for building great voice apps and implementing those principles to create robust apps. Thymé-Gobbel leverages her expertise and training in cognitive science and linguistics to explain the hows and whys of voice interface in apps.

Beyond "Thank You"

"Thank you" seems entirely inadequate when we try to express the level of gratitude we have for you. The members of the WSU Alumni Association provide the fuel, passion, enthusiasm, and motivation for everything we do. Without you and WSU, we don't exist. Keeping that fact in mind, we knew we needed to go big. A simple thank-you note would not do. We needed an entire month to get our point across.

The month of May is our second annual Member Appreciation Month, powered by BECU. From May 1 to 31, the Alumni Association is offering a bunch of exciting and exclusive members-only opportunities, such as the New Cosmic Crisp® Cider Exploration: A Virtual Cider Tasting Event with 2 Towns Ciderhouse, a Cougar Collectors' Series wine sale, an exclusive online shop, and members-only shopping opportunities at the Nike, Columbia, and Adidas employee stores. Plus, this entire edition of *Washington State Magazine* is mailed only to WSUAA members. And there's much more.

BECU and the WSUAA make an incredible team. BECU cares for its members as much as the Alumni Association cares for our members. Any other type of partnership would not do justice to our members-first focus. We thank BECU for making our Member Appreciation Month possible. We invite you to check out what BECU has to offer members of the WSUAA.

"Members Make the Difference" is not just a tagline, it is a statement of fact. The purpose of the WSU Alumni Association is to help members connect with their alma mater. Members make a very real and substantial difference to WSU and Cougs everywhere. For all that and so much more, we dedicate the month of May to you, our members.



MEMBER APPRECIATION MONTH

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CLASSnotes

When a relative who was recently visiting Pullman for the first time asked Maddie Freiberg ('09 Comm.) for restaurant and bar recommendations, one spot immediately came to mind. "I spent a fair amount of time at The Cougar," she says. "It was always my number one choice. Whenever I'm in Pullman, stopping at The Cougar is one of my top priorities."

Generations of Washington State University students have come to Cougar Cottage, commonly called The Cougar, to relax after class or finals, meet friends, and forge bonds that last lifetimes. And they continue to return as alumni with their old college buddies or parents, children, and grandchildren—often Cougs themselves—to reminisce over burgers and beers.

"The Cougar, at its best, represents Cougar spirit," says owner **BOB CADY** (x'00 Hosp. Busi. Mgmt.), who frequented The Cougar as an undergraduate and bought the business 18 years ago. "It represents the multigenerational shared experience that surrounds WSU."

The ever-popular pub, which opened in 1932 and has always catered to students, celebrates 90 years this year. New signage is expected to arrive this summer. And the highly Instagrammable east interior wall where patrons leave their signatures is set to be repainted in early August to accommodate a new round of names. It's a tradition that started before Sharpies and paint pens. Patrons have been making their mark on The Cougar since its earliest days, when students would carve their names into tables with penknives.

Back then, The Cougar was known for its toasted sandwiches, house-made cake and pie, and, according to a menu found in a 1935-to-1939 scrapbook in the Manuscripts, Archives, and Special Collections at WSU Libraries, "thick malted milks." Coffee was a nickel. Milkshakes



PHOTO WHIT B/FOURSQUARE

Does Cougar Cottage hold a special place in your heart? Share your memories of The Cougar with Washington State Magazine at wsm@wsu.edu.

and ice cream sundaes cost 15 cents. Soup and most sandwiches were a dime. Booth service had a 10-cent minimum per person. And the most expensive menu items—egg malted milk, and ham and eggs with toast and apple butter—cost a quarter.

Today, burgers are \$8 to \$10.50. Pints and pitchers run from \$3.75 to \$22.75. And all ages are welcome until 8 p.m. The booths are long gone. On game days and

most weekend nights, patrons are lucky to get a table. The Cougar is often standing-room only, with people packed elbow-to-elbow.

The legendary WSU watering hole and eatery routinely makes lists ranking best college bars in the state and country. And that's no surprise to Freiberg, a member of The Cougar's exclusive Mug Club. Just 25 new members are selected each semester. "It's an honor to be in the Mug Club," she says. "It's so steeped in tradition. You're a part of something special, like being a Cougar in general. It's a forever tie to a really special place."

The Mug Club dates to at least the late 1970s, when The Cougar featured Quarter Pounder Nights and patrons could buy a beer for 25 cents. While some members take their mugs with them when they move or graduate, Cady says, "We still take care of about 1,200 mugs between our storage unit and on site at The Cougar." When out-of-town members visit, staff unearth their mugs. "We prefer a week notice," Cady notes, adding, "While The Cougar might look different than it did in the '30s, '40s, or '50s, the general feel and atmosphere of undergrad Cougs spending time together with their friends and enjoying their company is still what we do. That's the heart of The Cougar."

BY ADRIANA JANOVICH

60 GORDON DAVIS ('68 Ag, '69 Ag. Ed.) and his wife, Joyce, gifted \$44 million to the Texas Tech University agriculture college, now called Gordon W. Davis College of Agricultural Sciences and Natural Resources. It's the largest single donation in the university's history. In 1984, Davis established CEV Multimedia, which develops online curricula, instructional materials and certification testing for career and technical education. Davis grew up on a dairy and wheat farm in Eastern Washington. In 1980, he became an assistant professor at Texas Tech, where he coached the meat judging team. Now retired, he continues his philanthropic work through the Gordon and Joyce Davis Foundation.

70 MARK D. HAYWARD ('75 Socio.) is a 2022-23 Visiting Scholar for Phi Beta Kappa, the nation's oldest academic honors organization, with its Gamma chapter founded at WSU in 1928. Since 1956, the Visiting Scholar program connects students and faculty with some of America's most distinguished scholars. Hayward is a Centennial Commission Professor in the Liberal Arts at the University of Texas at Austin. His work focuses on health demographics and population health science, and he is an editor for his field's major journal, *Demography*. **KATHERINE ANKERSON** ('78 BS, '79 BA, '94 MS Arch.) is the executive vice chancellor for academic affairs at the University of

Nebraska-Lincoln. As dean of the College of Architecture, Ankeron oversaw a 24 percent increase of architecture faculty recognized with academic and professional honors and a 21 percent increase in the six-year graduation rate. Anderson was the International Interior Design Association's 2020 Educator of the Year, and she served as a professor and associate dean at Nebraska from 1996 to 2011.

80 FOREST G. MARYOTT ('81 Forest & Range Mgmt.) has retired as a sergeant with the Ephrata Police Department. A former Marine, Maryott has also worked for the Spokane sheriff's office, Washington State Department of Fish and Wildlife, and as a detective and more for the city

CLASSnotes



COURTESY CHRIS WINKLER

CHRIS WINKLER wanted to conquer a longer ride. He had already biked from Seattle to Portland a half-dozen times. Once, he cycled from Tri-Cities to San Francisco. That particular trip “kind of whet my appetite,” he says. “I toyed with a 48 states ride. Then I thought: how about a coast-to-coast ride?”

From June through August 2021, Winkler ('86 Chem. Eng.) cycled from Portland, Oregon, to Portland, Maine. Technically, he started his ride on the Oregon Coast, so it was truly a coast-to-coast tour.

In all, the former Coug basketball player biked 3,797 miles in 69 days across the northern United States, pedaling through 14 states.

“You just enjoy the ride,” he says. “You’re in the fresh air. You’re really fortunate to be out there. It’s about the experience and not know-

ing what’s going to happen and what you’re going to do to overcome it. I like riding long distances on my bike. I’m a pretty good solo rider. It gives me time to think.”

The entire trip took 89 days, and he and his wife, Cheryl, put just over 10,400 miles on the RV they bought for their adventure.

She drove and tracked his progress, meeting him along the route to refill his water bottle. He rode around 65 miles per day, sporting a WSU jersey most days of the ride.

“And I tell you what: I loved it. If I could, I’d be out there doing it still. You have hard days. But that’s the beauty of it. I enjoyed the hard days as much as the good days because it’s all part of the experience.”

BY ADRIANA JANOVICH

of Ephrata. ✨ **THOMAS EADES** ('83 Comm.) has retired from the San Juan County sheriff's office after 33 years as an emergency services dispatcher. He now works for San Juan Island Fire and Rescue as a fire apparatus operator. ✨ **ROBERT GRANBERG** ('89 Civ. Eng.) is the president of Granberg and Associates, a company he founded after 29 years in municipal utility and public works project management. He is the general manager for a joint powers authority to plan, design, construct, and operate a new surface water supply for the cities of Turlock and Ceres, California. He is a licensed civil engineer in both California and Washington.

award honors individuals or companies for their contributions and efforts in championing the small brewing industry. Brulotte is owner of Icycle Brewing Co. and München Haus in Leavenworth. ✨ **JUANITA (BURKE) ROGERS** ('96 Land. Arch.) is a landscape architecture manager for MacKay Sposito, a consulting group based in Vancouver. She has 25 years of experience in master planning, urban design, parks and recreation, trail planning, and more. ✨ **JEAN-MARIA C. LANGLEY** ('97 Biol.) is recognized as a Distinguished Otolaryngologist by Continental Who's Who, an organization that spotlights thousands of professionals each year. She specializes in sinus and sleep apnea surgeries in Oklahoma. ✨ **RICHARD FRENCH** ('98 Busi.) is the new executive director of Palouse Knowledge Corridor, a regional economic development organization that brings talent and expertise from regional universities to offer Palouse-based activities for the benefit of the local community. French was president and CEO of Federal Engineers and Construction during his 15 years with the company and served as a project manager for Lockheed Martin Services. ✨ **MILTON LANG** ('98 Elem. & Sec. Ed., '08 EdD Higher Ed. Admin.) is CEO of Washington STEM, a nonprofit organization focused on education and social change. Lang was vice president of student services at Ohlone College in Fremont, California,

and vice president of student affairs and chief diversity officer at California State University, Chico. He previously oversaw student life at University of California, Davis, and Washington State University.

00 **CRAIG HUGHNER** ('03 Comm.) is the director of media relations for the Los Angeles Lakers. He was most recently vice president of communications for the San Diego Padres. A 2007 internship with the Seattle Mariners kicked off his 15-year career in Major League Baseball. ✨ **SARAH (YATES) MONNASTES** ('03 Psych.) is the human resources director for the city of Dublin, California. She held the same position for the city of San Ramon for four years and has 17 years of human resource experience. ✨ **BRYNAN (ENES) SHIPLEY** ('04 Human Dev.) is the Athletic Director of the Year for the 2A Greater St. Helen's League in southwest Washington. She serves as the director of athletics and activities at the Ridgefield School District, where she's worked for four years. ✨ Governor Jay Inslee appointed **ROBERT W. GRIM** ('07 Crim. Jus.) to the Okanogan County Superior Court bench. Grim is a partner of Winthrop law firm Kuehler and Grim, and a former Okanogan County District Court judge. He previously worked as a criminal defense attorney with Kottkamp and Yedinak in Wenatchee. ✨ **IRENE DEMARIS** ('08

Math.) is the executive director for Iowa Interfaith Power and Light, a statewide climate action group. A United Methodist deacon, DeMaris has helped the group expand climate programs, lead outreach efforts and secure funding since she joined two years ago. She has spent her career working for faith-based nonprofits and was previously the associate director of the Center for Public Theology at Wesley Theological Seminary in Washington, D.C. ✨ **ISLEY GONZALEZ** ('08 Ed.) is a recipient of the Corvallis Public Schools Foundation's 2021 Golden Apple Award. She is a health and physical education teacher and the cross country and track coach at Cheldelin Middle School in Corvallis, Oregon. Under her leadership, Cheldelin founded a branch of the youth organization Students Advocating for Equality. Gonzalez received a cross country and track-and-field scholarship to attend Washington State University. ✨ **CORI YOUNGBLOOD** ('08 Zool., '12 DVM) is an equine veterinarian and surgeon at Olympic View Equine Medicine and Surgery. ✨ **NICOLE MEAD** ('09 Comm.) is the vice president of business development and operations for the Ryan Seacrest Foundation, which supports creative initiatives and alternative therapeutic experiences in children's hospitals. Mead is based in Nashville, Tennessee, and works to bridge the entertainment, healthcare, and corporate communities to provide support for the foundation and the patients it serves. ✨ **MELISSA STUART** ('09 Comm., Poli. Sci) is a member of the Redmond City Council.

10 **TAYLOR SHANAMAN** ('12 Poli. Sci.) is the director of governmental and public affairs for Seattle King County Realtors. She has 10 years of experience and held similar roles with Oregon Realtors, Washington Realtors, and the Tacoma-Pierce County Association of Realtors. ✨ **TAYLOR HENNESSEY** ('14 Poli. Sci.) is the assistant attorney general in the torts section of the state attorney general's office in Spokane. Hennessey represents the state of Washington in civil lawsuits in Eastern Washington. Previously, he worked

in child welfare, where he represented the Department of Children, Youth, and Families. ✨ **MIRANDA JONES** ('14 Econ.) is a vice president and portfolio manager at Columbia Bank's Seattle office. Jones was a senior credit analyst at WaFd Bank and has almost seven years of commercial underwriting experience. ✨ **ANDREA SMITH** ('16 Pub. Affairs, '18 MPA) is the building codes and policy manager for the Building Industry Association of Washington. ✨ **HERCULES MATA'ABA** ('17) signed to the Washington Commanders practice squad. ✨ **ANDREAS BOHMAN** ('19 MBA) is the new vice president of University of Washington Information Technology and UW's chief information officer. He has more than 20 years of leadership experience in technology, security, and operations, and previously served as vice president of operations at Central Washington University. ✨ **CHRIS GUERRERO** ('19 Crim. Jus.) is the new police chief of the city of Kennewick Police Department. During his 26 years with the department, he previously served as assistant police chief and as a patrol officer, SWAT team member, field training officer, commander, and more.

20 **ELYSE BENNETT** ('20 Biol.) was selected as the seventh pick in the National Women's Soccer League draft by the Kansas City Current. During her fifth year of eligibility, Bennett returned to WSU as a graduate student after her senior season was canceled in 2020 due to the COVID-19 pandemic. She scored 10 goals and had four assists, leading the team with 24 total points, and received First Team All-Pac-12 honors. ✨ **ANTHONY GORDON** ('20 Soc. Sci.) is signed to the Denver Broncos practice squad. Gordon set Pac-12 conference single-season records for passing yards, passing touchdowns, completions, and total offense as WSU's starting quarterback in 2019. He went undrafted before signing a deal with the Seattle Seahawks as an unrestricted free agent in 2020 and then a future deal with the Kansas City Chiefs during the 2021 off-season.

INmemoriam

30 **DELLA LUCILLE (WHITLEY) HONSINGER** (x'35 Home Econ.), 106, April 8, 2021, Los Alamos, New Mexico. **LOLA IRENE ANDERSON** ('39 Fine Arts), 93, April 3, 2018, Lacey. **MARIETTE G. ANDERSON** (x'39 Sci.), 103, November 22, 2021, Boulder, Colorado.

40 **DORRIS J. GOODRICH** ('42 Socio.), 101, October 22, 2021, Santa Barbara, California. **ROBERT W. STEPHENS** ('43 Mining Eng.), 103, December 14, 2021, Spokane. **NINA V. BABCOCK** ('44 Home Econ.), 95, July 28, 2019, Terre Haute, Indiana. **MARJORIE JEAN BRUNNI** ('46 Home Econ.), 96, January 24, 2021, Lynnwood. **CAROL IRENE DRUFFEL** ('46 Fine Arts), 95, May 8, 2019, Uniontown. **PATRICIA E. DUNCAN** ('46 Pharm.), 93, March 27, 2017, Manning, California. **JEAN E. MADERIOUS** ('46 Bacterio.), 92, February 11, 2018, Santa Rosa, California. **HELEN JANET ZIMET** ('46 Home Econ.), 96, November 16, 2021, Issaquah. **VIRGINIA M. BERRIDGE** ('47 Gen. Stu.), 97, June 26, 2021, Brentwood, California. **HELEN GENE EDGREN** ('47 Fine Arts, Alpha Gamma Delta), 91, March 20, 2016, Spokane. **CAROL ZOE MITZ** ('47 Home Econ.), 98, January 20, 2022, Kennewick. **HAROLD W. "BUD" WOLFRAM** ('47 Forest & Range Mgmt.), 95, January 28, 2020, Tucson, Arizona. **VERA E. MOSBRUCKER** ('48 Spanish), 93, December 7, 2017, Gig Harbor. **MURIEL TRAVIS** ('48 Nursing), 91, May 22, 2016, Spokane. **ALVIN L. BLINDHEIM** ('49 Ani. Sci.), 94, October 3, 2018, Shoreline. **FRANK DRESSEN EMIGH** ('49 Mech. Eng.), 91, April 18, 2016, Bothell. **ALICE B. FITCH** ('49 English), 94, November 8, 2021, Seattle. **MORRIS ODEL GROUT** ('49 Pharm.), 96, June 22, 2020, Marysville. **GLADYS MAE HUGHES** (x'49), 91, September 21, 2021, Longview. **HOBART GLENN JENKINS** ('49 Ed., '51 MA, '70 DEd Higher Ed. Admin.), 92, March 15, 2016, Fall City. **LESLIE VERN MORTON** ('49 Forest & Range Mgmt.), 97, February 10, 2022, Olympia. **ERNEST "BABE" MUZATKO** ('49 Poli. Sci.), 94, January 24, 2019, Lacey. **JAMES J. RUE** ('49 Comm.), 96,

In Memoriam

August 31, 2021, Laguna Woods, California. **JOHN R. SCHAETLER** ('49 Music), 94, May 17, 2019, Yakima. **FOREST GLENN TRAVIS** ('49 Busi.), 92, December 1, 2016, Mead.

50 **JAMES T. BEAVERS** ('50 Elec. Eng.), 95, April 2, 2020, Auburn, California. **PETER JOHN DAMI** ('50 Pharm.), 94, May 9, 2019, Spokane. **CLARENCE M. DIAL** ('50 Music), 93, September 9, 2017, Chandler, Arizona. **RICHARD ALAN COCHRAN** ('50 Ani. Sci.), 90, January 21, 2018, Manson. **BARBARA F. HISEL** ('50 Home Econ.), 94, July 1, 2019, Moscow, Idaho. **JOHN G. MILLER** ('50 History, '53 Ed.), 95, April 21, 2021, Coraopolis, Pennsylvania. **NORA "LUCILLE" RAINONE** ('50 Gen. Stu.), 87, July 11, 2016, Longview. **EDGAR H. BROWN** ('51 MA Math.), 94, December 22, 2021, Newton Highlands, Massachusetts. **GORDON LESTER FARRAR** ('51 Mech. Eng.), 93, November 19, 2021, Silverdale. **PHYLLIS JANE MUNK** ('51 Home Econ.), 93, January 29, 2022, Albany, New York. **CARYL VIRGINIA REESE** ('51 Busi.), 92, December 21, 2021, Redmond. **EMMA JOAN (ERICKSON) IUOLO** ('52 Busi.), 93, November 25, 2021, Pullman. **RICHARD EVERETT WEBB** ('52 Ag.), 80, January 4, 2022, Gainesville, Florida. **JANE H. CAMPBELL** ('53 English), 87, March 4, 2019, Kapaa, Hawaii. **LOIS J. (HARTMEIER) CAVINESS** ('53 English), 90, January 1, 2022, Fairfield. **EARL LEO COOPER** ('53 DVM), 96, September 23, 2020, Asotin. **GEORGE LOUIS LUNDEN** ('53 Forest & Range Mgmt.), 94, December 22, 2021, Newport. **ALEXANDER M. ALVORD** ('54 Ag.), 88, August 11, 2021, Asheville, North Carolina. **IVAN DOYLE BROWN** ('54 Civ. Eng.), 90, December 22, 2021, Noblesville, Indiana. **ALVIN DELBERT BYRNE** ('54 Gen. Stu., '62 MAT Math.), 88, December 25, 2021, Wilsonville, Oregon. **PATRICIA A. HENNINGS** ('54 Home Econ.), 88, November 24, 2021, Ritzville. **MARY ALCYONE MAWHINNEY** ('55 Nursing), 92, September 18, 2016, Citrus Heights, California. **JOSEPH B. BUCHANAN** ('56 Busi.), 92, September 3, 2021, Sammamish.

WALLACE S. CAMPBELL ('56 Civ. Eng.), 86, October 7, 2020, Seattle. **JAY DELANO DELZER** ('56 Soc. Stu.), 86, November 29, 2020, Wenatchee. **JERVIS "JERRY" KESTER** ('56 Mech. Eng.), 88, December 31, 2021, Bloomfield, Connecticut. **HELEN ANNE (SKINNER) MITCHELL** ('56 Elem. Ed., Kappa Kappa Gamma), 87, January 5, 2022, Kennewick. **M. DARREL SHARRARD** ('56 Gen. Stu.), 86, October 14, 2021, Auburn. **CHARLES ROBERT STAIB III** ('56 Agro.), 86, October 28, 2021, Vacaville, California. **WILLIAM E. WELLINGTON** ('56 DVM), 90, January 4, 2022, Mount Vernon. **THOMAS MARTIN BARLOW** ('57 Mech. Eng.), 85, October 4, 2020, Lincoln, California. **ANN C. KUTSCH** ('57 Acc., Sigma Kappa), 86, February 3, 2022, Spokane. **GEORGE H. PLUMMER** ('57 Civ. Eng.), 84, April 23, 2019, San Antonio, Texas. **SUSAN CLOE** ('58 Gen. Stu.), 84, December 15, 2021, Anchorage, Alaska. **GERALD R. DAVIS** ('58 Poli. Sci.), 86, October 27, 2021, Fairfield, California. **KERMIT DWANE DELZER** ('58 Busi.), 83, October 28, 2020, Spokane. **ANNE GYLLENBERG** ('58 Journ.), 85, December 17, 2021, Longview. **LOUIS C. "LEN" NOTHWANG** ('58 Mat. Sci.), 71, November 14, 2021, Pleasant Hill, Oregon. **ANNA HOSIG RENDISH** ('58 MAT English), 93, November 15, 2021, Spokane. **DONALD C. BILLINGS** ('59 Gen. Stu.), 91, November 9, 2021, Puyallup. **GERALD DALE "SPUD" HANSEN** ('59 Busi.), 86, February 7, 2021, Puyallup. **DICK W. JANSEN** ('59 Busi., '71 MBA), 85, November 29, 2021, Lacey. **LEROY A. JONES** ('59 Geol.), 84, October 17, 2021, Wenatchee. **FRANK ALLEN MOSEBAR** ('59 Ag.), 87, February 7, 2022, San Jose, California. **ROBERT GENTRY QUINN** ('59 Civ. Eng.), 88, November 20, 2020, Quinault. **MARILYN R. THOMPSON** (x'59 Music), 84, December 7, 2021, Sequim. **KAY MARGARET UPSHAW** ('59 Bacterio.), 83, March 13, 2020, Walnut Creek, California.

60 **CLYDE LACEY CALVIN** ('60 Ag.), 87, November 3, 2021, Richmond, California.

JOSEPH DONALD COOMBS ('60 Ag., Delta Chi), 85, February 9, 2022, Fairfield. **KENNETH E. GRAVES** ('60 Police Sci.), 87, January 28, 2022, Lacey. **JERRY BRUCE HOOK** ('60 Pharm.), January 9, 2021, St. Michaels, Maryland. **CHARLES H. MACKDANZ** ('60 Chem. Eng.), 83, November 25, 2021, Nampa, Idaho. **PATRICK M. MURAKAMI** ('60 Civ. Eng.), 83, April 1, 2020, Kahului, Hawaii. **DAVID LEWIS WHITEMAN** ('60 Police Sci.), 86, November 13, 2021, Colorado Springs, Colorado. **ANN STUART ANDERSON** ('61 Poli. Sci.), 89, December 28, 2021, Frederick, Maryland. **CHRISTINA DELIGANIS** ('61 Pharm.), 83, January 15, 2022, Seattle. **INEZ MINA (THOMPSON) FREEMAN** ('61 Gen. Stu.), 82, June 30, 2021, Goldendale. **JOHANNA BENSON GAETJE** ('61 Elem. Ed.), 82, December 18, 2021, Richland. **BILLY SEABURN JONES** ('61 Police Sci.), 87, December 15, 2021, Olympia. **RONALD S. KNUDSEN** ('61 Phys. Ed.), 84, January 31, 2022, Liberty Lake. **JAMES BARNETT LEBE** ('61 DVM), 89, November 28, 2021, Bremerton. **ARNOLD RAY PLEASANT** ('61 Gen. Stu.), 83, December 1, 2021, Olympia. **JOHN SAGER REPANICH** ('61 Math.), 81, November 20, 2020, Bainbridge Island. **ROBERT C. CORLESS** ('62 Pharm.), 82, October 18, 2021, San Clemente, California. **DONALD ERNEST WALDERN** ('62 PhD Ani. Sci.), 93, December 30, 2021, Penticton, British Columbia, Canada. **WAYNE PETER HARMON** ('63 Botany), 81, October 31, 2021, Glendale, Arizona. **DARRELL ALLAN LEARN** ('63 Civ. Eng.), 81, September 2, 2021, Salem, Oregon. **MICHAEL C. GIES** ('64 Math.), 79, August 6, 2021, Seattle. **RONALD CLAIR GRIFFITH** ('64 Ag. Ed.), 80, January 2, 2022, Bellevue. **ALAN OHLIN MARTIN** ('64 MAT Math.), 94, May 22, 2019, Mount Vernon. **GARY GEORGE SANFORD** ('65 MS Elec. Eng.), 80, January 2, 2022, Woodway, Texas. **VICTOR LAMARR SWAN** ('65 Pharm., '80 PhD Geol.), 81, September 22, 2021, Pullman. **L.D. CHARF** ('66 Arch.), 76, October 23, 2019, Vashon. **OLETA NIDEROST** ('66 Soc. Stu.), 78, January 26, 2022, Corvallis, Oregon. **LINDA ANN**

BERNDT ('67 Ed.), 76, November 5, 2021, Albany, Oregon. **GARY EDWARD CONVERSE** ('67 Arch.), 79, February 17, 2022, Portland, Oregon. **WILLIAM EDWARD PETERS** ('67 Econ.), 76, June 30, 2021, Desert Hot Springs, California. **VERLIE ANN (WADEKAMPER) SHERWIN** ('67 Home Econ.), 77, November 17, 2021, Washougal. **ALFRED STARR** ('67 Poly Sci.), 79, November 18, 2021, Seattle. **RALPH LEE "PORKY" THOMSEN** ('67 Speech, Theatre Arts), 77, January 15, 2022, Richland. **LYLE RAYMOND BRUCE** ('68 Ag. Econ.), 79, December 31, 2021, Spokane. **LARRY EUGENE HOWARD** ('68 Bacterio.), 74, August 28, 2020, Spokane. **PAUL STEWART MULLER** ('68 Soc. Sci.), 76, January 17, 2022, Richland. **BARBARA JOYCE (EAGLE) MUSELLA** ('68 Econ., Kappa Delta), 75, December 11, 2021, Los Angeles, California. **ALAN KEITH ENGLE** ('69 Math.), 74, December 26, 2021, Dearborn Heights, Michigan. **HARRIOT L. HAGEDORN** ('69 English, Delta Gamma), 74, December 25, 2021, Moscow, Idaho. **MICHAEL LEE KAUFFMAN** ('69 Hotel & Rest. Admin.), 75, February 4, 2022, Windsor, Colorado. **CATHERINE LEE WAMSLEY** ('69 Higher Ed. Admin.), 73, November 23, 2021, Hermiston, Oregon.

70 **DAVID ALAN MICHAUD** ('70 History), 79, February 8, 2022, Gig Harbor. **ROBERT S. VAN SLYKE** ('70 EdD Ed. Psych.), 91, October 31, 2021, Juneau, Alaska. **THOMAS WILLIAM BEHNE** ('71 Anthro.), 72, September 18, 2021, Hartline. **LINDA LORENE (UPHAM) BORDWELL** ('71 Nursing), 73, February 15, 2022, Mead. **PHILLIP A. SHELSTAD** ('71 Elec. Eng.), 80, December 28, 2021, Sedona, Arizona. **LEWIS S. COLEMAN** ('72 MS Physics), 81, January 19, 2022, Shoreline. **REBECCA ELLEN HILLE** ('72 Apparel Merch.), 71, December 3, 2021, Spokane. **ERNEST G. NIEMANN** ('72 MAT Biol.), 74, October 8, 2020, Watertown, Wisconsin. **WARREN E. BABCOCK** ('73 MA History), 82, February 9, 2022, North Logan, Utah. **CLARK CASEBOLT** ('74 Ed.), 69,



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In Memoriam

February 5, 2022, Seattle. **JONATHAN KATZ** ('74 MS Zool., '81 DVM), 71, November 23, 2021, Ames, Iowa. **JAMES GORDON LAREAU** ('74 MS Enviro. Eng.), 91, February 1, 2016, San Antonio, New Mexico. **CHESTER S. "CHET" MORRIS** ('74 Socio.), 70, January 4, 2022, Tacoma. **R. BRIAN ROWSE** ('75 DVM), 70, December 5, 2021, Brier. **ROBERT R. SCHISLER** ('75 Arch.), 69, March 20, 2019, Spanaway. **KATHLEEN H. BUTTS** ('76 PhD Socio.), 96, August 24, 2021, Pullman. **JULIA CECEILE (MATHENA) LARSEN** ('76 Police Sci.), 71, February 15, 2022, Leavenworth. **RODNEY FLOYD MATYE** ('76 Forest & Range Mgmt.), 74, January 14, 2022, Cosmopolis. **PATRICK CHARLES HART** ('77 Wildlife Biol.), 67, February 8, 2022, Pasco. **DALE CRAIG CULBERTSON** ('78 Ag. Ed.), 82, January 28, 2022, Colfax. **RUTH ANN JURIS** ('78 DVM), 68, January 21, 2022, Plains, Montana. **ALTON BERYL BUTLER** ('79 Forest & Range Mgmt.), 63, November 15, 2017, Battle Ground. **JAMES E. GRISWOLD** ('79 Econ.), 65, December 5, 2021, Redmond. **STEVE KELLY KIPISZ** ('79 Const. Mgmt.), 64, January 21, 2022, Kirkland. **ROBERT HAROLD NEUMAN** ('79 MEd), 94, October 22, 2018, Ellensburg. **WALTER GEORGE REX** ('79 Mktg.), 64, December 22, 2021, Seattle.

80 **TOM DORSEY** (x'80 Econ., Acacia), 63, March 22, 2021, Liberty Lake. **LYNETTE COLLEEN (SAMMONS) LEE** ('81, '84 MS Crim. Jus., '89 PhD Poli. Sci.), 62, January 17, 2022, Salem, Oregon. **KENNETH M. KEATING** ('82 PhD Socio.), 75, February 1, 2022, Portland, Oregon. **LYNN ORIN OLDENBURG** ('82 PhD Ed.), 76, January 26, 2022, Billings, Montana. **ROBERT WILLIAM CLARK** ('86 MS Comp. Sci.), 73, November 27, 2021, Cheney. **GLEN SUSSMAN** ('87 PhD Poli. Sci.), 71, December 31, 2021, Norfolk, Virginia. **WILL A. GASSMAN** ('88 Busi.), 57, December 5, 2021, Spokane.

90 **SCOTT ALAN RICHEY** ('90 Mech. Eng.), 64, February 10, 2022, Richland. **DALE BRIAN MCLEAN** ('91 Elec. Eng.), 57,

November 15, 2021, Bellevue. **MICHAEL RAYMOND VANDERHYDE** ('91 Hotel & Rest. Admin.), 49, May 12, 2018, Kirkland. **GREGORY JAY MCKNIGHT** (x'93 Comm.), 44, January 28, 2016, Enumclaw. **JOHN SIMPSON YATES** ('93 For. Lang. & Lit.), 54, January 18, 2022, Pullman. **TIM BAXTER** ('94 Soc. Sci.), 51, January 18, 2022, Golden, Colorado. **DEREK ROSHAN SPARKS** ('96 Gen. Stu.), 48, November 23, 2021, Kent. **LAY-GAR "LEIA" KHOO** ('97 Info. Sys.), 48, February 14, 2022, San Jose, California. **TRACY ANNE THOMPSON** ('97 DVM), 57, December 10, 2021, Longmont, Colorado. **JEFFREY KAVANAUGH** ('98 Comp. Sci.), 53, February 2, 2022, Lynnwood. **ERIK WILLIAM LEVY** ('99 English, Ed., '01 MA Elem. & Sec. Ed.), 47, November 1, 2019, Valley. **KRISTEN APRIL SIMONSMEIER** ('99 Intl. Busi.), 44, March 23, 2019, Liberty Lake.

00 **REBEKAH MARIE UHTOFF** ('01 Mat. Sci.), 40, December 3, 2016, Bremerton. **JOEL EDWARD HUGHES** ('02 Comm.), 41, September 8, 2021, Portland, Oregon. **RYAN EDWARD JOSEPH WELCH** ('03 Hum.), 41, January 2, 2022, Seattle.

10 **BETTY WHITE LUDDEN** ('11 Vet Med.), 99, December 31, 2021, Los Angeles, California. **KYLE FRIES** (x'17 Comm.), 27, September 28, 2021, Chicago, Illinois.

20 **ERIC LAWRENCE FLOYD** ('21 Public Affairs), 52, December 2, 2021, Vancouver.

FACULTY AND STAFF

VIRGINIA "GINNY" BALDWIN, 84, Housing Services, 1977-2010, January 27, 2022, Lewiston, Idaho. **JACQUELINE "JACKIE" BECKMAN**, 80, College of Liberal Arts, 1985-2006, November 25, 2021, Moscow, Idaho. **JOHN T. BREWER**, 83, Foreign Languages and Cultures, 1967-2001, December 20, 2021, Pullman. **ROGER CHAPMAN**, 85, Natural Resource Science, 1973-2008, August 30, 2021, Pullman. **MARY KATHLEEN "KATHY" CUELLAR**, 69, Central Receiving, 1987-2017,

December 2, 2021, Pullman. **DALE CRAIG CULBERTSON**, 82, Facilities, 2001-2021, January 28, 2022, Colfax. **ELAINE DUFFIELD**, 66, Athletics, 1999-2007, January 19, 2022, Moscow, Idaho. **DONALD GILLILAND**, 91, College of Science, 1981-1995, November 19, 2021, Pullman. **RICHARD E. "DICK" JOHNSON**, 85, Zoology, 1971-1999, December 8, 2021, Pullman. **CARL KETCHIE**, 84, Physical Plant, 1975-2000, November 15, 2021, Pullman. **ROM J. MARKIN**, 89, Business, 1961-2004, December 11, 2021, Spokane. **BYRON MARLOWE**, 43, WSU Tri-Cities, Wine & Beverage Business Management, 2015-2021, December 28, 2021, Richland. **RICHARD MLASKO**, 82, Facilities, 1989-2001, November 9, 2021, Clarkston. **CLAYTON MOSHER**, 60, WSU Vancouver, Sociology, 1995-2022, January 30, 2022, Vancouver. **R.G. SCHRECKHISE**, 76, Environmental Science, 1995-2007, April 8, 2020, Kennewick. **MARIAN SHEAFOR**, 94, Nursing, 1983-1998, January 9, 2022, Spokane. **STAN SMITH**, 84, Economics, 1968-1993, July 3, 2020, Valley Mills, Texas. **JAMES FREDERICK "JIM" SPANGLER**, 79, Extension, 1966-2004, December 23, 2021, Lewiston, Idaho. **VICTOR SWAN**, 81, Coug Tech, 1980-2007, September 22, 2021, Pullman. **HARRY D. WILLIAMS**, 94, Information Services, 1956-1989, January 26, 2022, Kennewick.



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Actor and comedian **Betty White** became an honorary WSU alumna in 2011. White had a long-standing relationship with the WSU College of Veterinary Medicine through alumnus Bob Olds '67. White became a donor in 1992 and served on the founding steering committee for the Center for the Study of Animal Well-Being at WSU.



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ORGANIC AND GEOMETRIC, the 11 large light fixtures that illuminate the new Podium sports complex in Spokane dynamically shift light and ambience throughout the day and night. Washington State University architecture professor Taiji Miyasaka and Seattle artist and engineer Clayton Binkley collaborated to create the installation, titled "Chromasphere." They used reclaimed western redcedar, cut the planks into regular hexagons to be stacked spirally, then hung the fixtures in three clusters. The largest fixture measures 12 feet tall by 9 feet in diameter. The project was commissioned by the Spokane Public Facilities District and administered by Spokane Arts for the new sports facility.

The installation, which resembles pinecones, has interiors painted with a plaster made from recycled drywall waste that Miyasaka researches with David Drake at WSU. Miyasaka and Binkley designed the multicolored lights to adapt and express a different feeling as daylight shifts.

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— **Lindsey Elhart Baker, '14**

*WSUAA Life Member / Former President of WSUAA Seattle Chapter
Honors College Advisory Board / Carson College of Business Mentor*

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