

A person wearing a white lab coat and a black wristband is holding a large fish, possibly a trout, with its mouth open. The fish has a yellowish-orange belly and a dark back. The background is blurred, showing what appears to be a laboratory or field setting.

# ACES MAGAZINE

COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

VOLUME 5 | SPRING 2021

# FORCES *of* NATURE

*New Mexico co-op research unit heads into the wild*

# DEAN'S LETTER

The College of ACES has been working diligently to reach goals our leadership team has targeted under the ACES Strategic Plan and NMSU LEADS 2025. For example, we're identifying new areas where research can positively impact New Mexico and help NMSU become an R1 institution, the highest Carnegie research status. For this reason, we've implemented several teams working to develop roadmaps for ACES and NMSU.

In this issue, we've highlighted several innovative research projects from ACES faculty. You will learn how our college is tackling environmental issues and working to solve challenges related to hemp cultivation and carbon sequestration, and much more.

We're also increasing our collaborations with ACES alumni. For example, Dr. Mario Allegri, an ACES alumnus and Distinguished Alumni Award recipient for 2012, is working with ACES faculty on several projects from Uruguay. These actions strengthen our alumni relationships and attract new students while expanding NMSU's role overseas, which benefits the ACES community and New Mexico.

To our alumni: We appreciate your support and collaboration in giving New Mexico residents a chance to improve their health, environment and economic well-being, and facilitate their social mobility through educational opportunities.

Finally, kudos to all ACES and NMSU employees – and all New Mexico residents – who have worked so hard to mitigate the devastating effects of COVID-19.

I hope you enjoy our fifth issue of the *ACES Magazine*. Go Aggies!



Rolando A. Flores  
Dean and Chief Administrative Officer



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Colleen Caldwell, leader of the New Mexico Cooperative Fish and Wildlife Research Unit, holds a Trojan trout in her lab at NMSU.  
Photo by Josh Bachman



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From left to right, AXED department head Steven Frazee, AXED assistant professor Shannon Norris, AXED Extension specialist LaJoy Spears, AXED assistant professor Nellie Hill, AXED professor Frank Hodnett and AXED professor Don Edgar.

# NEW DIRECTION

AXED shifts focus to offer new classes and curriculum emphasizing communications

BY MELISSA RUTTER

The Department of Agricultural and Extension Education in the College of ACES is undergoing major changes to provide programs that are in high demand. The department, known as AXED, is now placing greater emphasis on agricultural communications – a rapidly growing field.

“We are losing large numbers of New Mexico students who are going to other states to study ag communications,” said Steven Frazee, AXED department head. “We’re going to focus on growing our un-

dergraduate program with the development of new courses and curriculum. Another change is in our graduate program, which is developing a concentration in strategic communications with the Department of Journalism and Media Studies.”

One of the new agricultural communication classes is an agricultural and scientific publications course taught by AXED assistant professor Shannon Norris.

“This class will help students apply journalistic, design and photography skills to a print publication production setting,” Norris said. “This course is designed to enhance students’ skills in gathering, researching, writing and editing agricultural news features; producing quality visual elements to support editorial content; and compiling materials to highlight the ACES brand in print publication settings.”

Developing more communications – related courses will play a valuable role in the college as communication skills intersect across all disciplines, Norris said.

“Adding a print publication course reinforces fundamental communication skills needed for all ACES graduates, regardless of their major,” she said. “I hope students gain a firm foundation of the critical-thinking skills needed to connect to ACES supporters and students. I also hope students reinforce their Aggie pride as they work to tell a comprehensive student perspective in *ACES Magazine*.”

Other new classes created by Nellie Hill focus on graphic design, web design and photography.

“My graphic design course focuses on small-business branding, while the web

design class focuses on user-experience design and will help the students create a personal portfolio website,” said Hill, an AXED assistant professor who focuses on digital design.

AXED is currently creating a new bachelor’s program in agricultural communications, a degree that will require students to be well-rounded in writing and design and demonstrate soft skills in leadership and creative problem-solving.

AXED is also focused on educating students in agricultural mechanics.

“Technology is impacting all sectors of our lives. Preparing the next generation of professionals in agricultural necessitates the infusion of technology into their education,” AXED professor Don Edgar said. “In our department, students will now have the opportunities to learn about technologies affecting agriculture production such as using drones for soil imaging and crop analysis. As AXED continues to expand its capabilities, NMSU students will be more prepared for the agriculture environment of today and tomorrow.”

Frazee hopes AXED can become a destination for students who want to study agricultural education, extension and communications.

“We want to make dramatic growth. Our target is to double our student number in the department in four years,” he said. “We are also planning to grow our graduate program to accommodate place-bound students who need to complete a graduate degree. We are working toward this goal through collaborative efforts with other departments and enhancing our online delivery.”

# CHARTING A NEW COURSE

## AES refines mission with updated strategic plans

BY TIFFANY ACOSTA

Following an update of strategic plans at the NMSU Agricultural Experiment Station system and every agricultural science center in 2020, a new course to guide the research enterprise has been charted.

“These strategic plans help focus and revisit the vision of each science center and assist us with prioritizing our needs,” said Leslie Edgar, ACES associate dean and AES director. “I am especially proud that our agricultural science centers, located throughout the state, have specific research, teaching and outreach priorities for each community written into these strategic plans. In the near future, these plans will assist with the AES vision for boosting utilization of all the agricultural science centers and the value each center provides to New Mexico communities.”

Edgar said current goals for AES include discovering research roadblocks and developing strategies to overcome them; creating a culture shift to ensure a commitment to research success as well as diversity, inclusiveness and excellence; aligning and integrating on-campus departments and

research units with off-campus agricultural science centers; leveraging partnerships, knowledge transfers and spillovers to enhance and expand economic and community development; and using data, relationships and increased strategic communication channels to enhance prominence and prestige.

“Additionally, ACES will leverage its existing areas of strength to solve the most pressing challenges faced by our state, nation and the world,” she said. “To return to Carnegie R1 status, our primary focus will be on research productivity, but the plan will also incorporate strategies to strengthen and enhance the outreach components of our land-grant mission.”

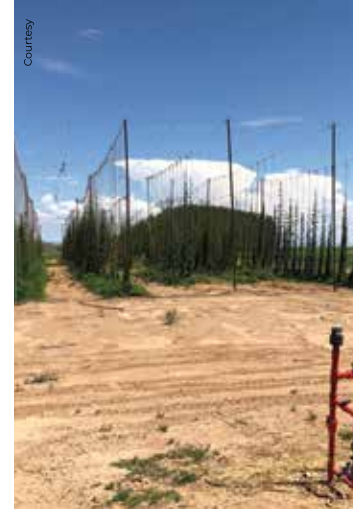
With \$3 million allocated during New Mexico’s 2019 legislative session, five off-campus agricultural science centers received funding for repairs on deferred-maintenance issues. The recently completed projects included the installation of a new water system at the Tucumcari ASC; construction of a greenhouse and electrical safety repairs at the Farmington ASC; shop

building repairs at the Artesia ASC; installation of a new feed mill boiler, administrative building flooring replacement and barn water line repairs at the Clayton Livestock Research Center; and administrative building structural repairs at the Alcalde ASC.

Additionally, more deferred-maintenance needs at the agricultural science centers will be addressed after New Mexico voters approved the General Obligation Bond C in November 2020.

“Effecting these much-needed infrastructure repairs will allow AES to more effectively conduct research to address the outstanding agricultural needs of our citizens,” Edgar said.

Clockwise from top left: Agricultural Science Center at Farmington; Agricultural Science Center at Artesia; Leyendecker Plant Science Research Center in Las Cruces; Rex E. Kirksey Agricultural Science Center at Tucumcari; Fabian Garcia Science Center in Las Cruces; Sustainable Agriculture Science Center at Alcalde; and Agricultural Science Center at Los Lunas.



### Couple supports NMSU chile research, education through endowments



Chris Casella

Sue and John Hard want their legacy to extend far beyond the hot sauces and salsas that made their company, CaJohns Fiery Foods, a household name among chile connoisseurs. That’s why the couple remains committed to furthering chile research and education at NMSU.

The couple has supported the Chile Pepper Institute by helping to fund the Paul W. Bosland Chile Pepper Breeding and Genetics Endowed Chair through proceeds from sales of their Holy Jolokia hot sauce – their first product collaboration with NMSU.

Recently, they established the Sue and John Hard Chiles Por Vida Endowed Scholarship, which will help a student who works in the Chile Pepper Institute or NMSU Chile Pepper

Breeding and Genetics Program, or who has an interest in combining horticulture research and entrepreneurship.

“We wanted to make it possible for one of these NMSU students to be brilliant and do great things in the agricultural world,” John Hard said.

### Jinfa Zhang earns 2020 Cotton Genetics Research Award

Jinfa Zhang, professor in the Department of Plant and Environmental Sciences, received the 2020 Cotton Genetics Research Award from the National Cotton Council during the 2021 Beltwide Cotton Conferences in January.

Award nominators commended Zhang for his impact on the cotton community. One nominator said he confronted the threat of expansion of Fusarium wilt race 4 into Texas and New Mexico with integrity and generosity, sharing knowledge with others by releasing publications and two resistant cultivars.

“Our breeding program has gone through five generations of breeders since 1925,” Zhang said. “A study published in Crop Science indicated that NMSU cotton germplasm contributed to 45 percent of the cultivars grown in the U.S. between 1950 and 1990.”



Josh Bachman

### ACES touts expertise in artificial intelligence at international conferences



Josh Bachman

In November 2020, an ACES team – including Dean Rolando A. Flores, alumnus Mario Allegri and faculty members Derek Bailey, Lara Prihodko and Manoj Shukla – participated in a virtual convention for the Inter-American Institute for Cooperation on Agriculture, or IICA.

The team discussed artificial intelligence in agriculture and ACES’ expertise in solving challenges with emerging technology. ACES has a memorandum of understanding with IICA to engage in ongoing meetings, dialogues and discussions to further artificial intelligence in agriculture interactions as well as collaborative efforts in academics, research and extension.

“Participation in IICA activities is important for NMSU and ACES since those activities have a projection over all the Americas and the Caribbean,” said Flores, who participated in another virtual discussion with IICA in February.

### ACES researchers collaborate to study innovative water-saving technology



Josh Bachman

The College of ACES continues to study groundbreaking water-saving technology in partnership with two agrotechnology companies based in Israel, Tal-Ya Agriculture Solution and N-Drip.

In March 2020, ACES researchers established demonstration fields at Leyendecker Plant Science Research Center to evaluate Tal-Ya’s Mitra and N-Drip’s Gravity Micro Irrigation systems for potential use in New Mexico. The Mitra system is a recyclable platform that facilitates an ideal microclimate around plants’ roots. The N-Drip system provides precise irrigation using only gravitational force for power and tolerates natural water without pressure-based filters.

“We look forward to continuing this research and working in partnership with these companies,” said Manoj Shukla, professor of plant and environmental sciences, who oversees the studies.

### Efren Delgado and Jay Lillywhite take helm of NMSU Center of Excellence

ACES faculty members Efren Delgado and Jay Lillywhite are now leading the NMSU Center of Excellence in Sustainable Food and Agricultural Systems as co-directors.

CESFAS is one of four Centers of Excellence in New Mexico created in 2019 by Gov. Michelle Lujan Grisham and state lawmakers to drive innovation and build closer links between research, communities and industry. CESFAS, housed in the College of ACES, works to aid New Mexico’s agricultural economy by conducting innovative, transdisciplinary and collaborative research that facilitates and develops strong food and value-added agricultural businesses.

As CESFAS co-directors, Delgado and Lillywhite currently oversee five transdisciplinary, intercollege research teams working to make advances in artificial intelligence in agriculture, sustainable water systems, hemp industrialization and other critical areas.



Darren Phillips

### NMSU Center of Excellence, Tri-State and EPRI bring container farm to Grants



Tri-State Generation and Transmission

The NMSU Center of Excellence in Sustainable Food and Agricultural Systems has partnered with Tri-State Generation and Transmission to join the Electric Power Research Institute’s National Demonstration and Monitoring of Indoor Food Production Facilities research project to explore indoor agriculture concepts.

A shipping container-scale indoor farm on the NMSU Grants campus uses water- and energy-efficient methods. Led by CESFAS, researchers are using the container to study the energy, water and sustainability impact of indoor farming and explore opportunities to foster workforce and economic development in Cibola County. Researchers from the College of ACES, College of Engineering and NMSU Grants are working to identify value-added alternatives for sustainable agriculture production in the region.

# LAYING THE GROUNDWORK

NMSU-led research shows promising future for hemp in New Mexico

BY ADRIANA M. CHÁVEZ

NMSU has signed a memorandum of understanding with the Navajo Agricultural Products Industry to explore the feasibility of growing hemp in northwest New Mexico.

In 2019, ACES faculty received the go-ahead from state officials to begin research into hemp cultivation, which became legal to grow that same year. Since then, research efforts have focused on understanding hemp agronomics under a new regulatory system established by the New Mexico Department of Agriculture.

While there continues to be great enthusiasm surrounding the possibilities of hemp cultivation in New Mexico, more research needs to be done regarding the risks and benefits and how guidelines and policies should be developed across the state, including the Navajo Nation, said Kevin Lombard, superintendent of the NMSU Agricultural Science Center at Farmington and associate professor of horticulture in the Department of Plant and Environmental Sciences.

The Agricultural Science Center at Farmington is the only site within the NMSU Agricultural Experiment Station system west of the Continental Divide. It is also the only 1862 land-grant science center to work directly on sovereign First Nations land. On land leased from the Navajo Nation, researchers from Farmington ASC carry out unique research on potatoes, corn, alfalfa, small grains, fruit crops, hops and hemp.

Two years ago, NMSU signed a memorandum of understanding with the Navajo Agricultural Products Industry to explore the feasibility of growing hemp in northwest New Mexico. After undergoing an extensive process that included background checks, NMDA



New Mexico Department of Agriculture

granted NMSU a permit to grow hemp. NMSU also obtained an exemption from the Navajo Nation Council for hemp research. Since then, Lombard and an NMSU research team, along with members of the Navajo Agricultural Products Industry, have focused their studies on three hemp cultivars, Cherry Wine, Sweetened and Wife, to determine whether they could be grown within state THC harvest requirements of at or below 0.3 percent. “The most active interest in New Mexico hemp production is currently CBD extraction, and many other proclaimed health, food, fiber

and industrial uses,” Lombard said. CBD is a medicinal compound of hemp used in Epidiolex, an anti-epileptic medication approved by the Food and Drug Administration. “Overall, the first year was successful in terms of beginning to better understand hemp agronomics within the context of a newly established regulatory system,” Lombard said. NMSU Chancellor Dan Arvizu praised the efforts by Lombard and ACES. “We’re very excited for this project,” Arvizu said. “Energy, water, agriculture and data analysis are components of our nation’s

Current hemp cultivation research focuses on the understanding of hemp agronomics under a new regulatory system established by the New Mexico Department of Agriculture.

critical infrastructure and areas of expertise for NMSU. This effort allows us to leverage our strengths as a university to help spur economic development. We’re looking forward to pursuing systematic solutions with broad applications.”

But more research and education are needed to help growers determine if hemp is the right crop for them, Lombard said.

“The volatility of hemp is a huge risk that growers need to consider,” he said. “There are new federal guidelines that went into effect in March 2021. You have to educate yourself in everything you do with hemp.”

In general, Lombard said, research has not caught up with grower enthusiasm.

“Research efforts should be rapidly scaled up to give growers the most up-to-date information to allow growers to decide if hemp is right for them in a rotational-based cropping system,” he said. “There are other aspects of hemp that also should be considered, including understanding cultural, social and community norms, odor and regulatory systems that protect everyone, not just hemp growers.”

Following the United States Department of Agriculture’s approval of NMDA’s state hemp production regulatory plan in October 2020, the NMSU Cooperative Extension Service began hosting a series of workshops to help stakeholders learn more about the emerging crop for agriculture producers in the state.

The first workshop took place earlier this year and focused on research-based information and business advice about growing and processing hemp.



Jeff Anderson

NMSU and the Navajo Agricultural Products Industry are centering their hemp research on three cultivars – Cherry Wine (pictured), Sweetened and Wife.



Owen Burney

# REFORESTING AMERICA

Tree seedlings in a nursery at the John T. Harrington Forestry Research Center at Mora. A recent study co-authored by the center's superintendent, Owen Burney, found the number of trees grown in the nation's nurseries will need to more than double if the United States hopes to leverage its forests to help address climate change.

## NMSU contributes to study urging U.S. to ramp up tree production

BY JANE MOORMAN

Land managers have a massive job ahead of them to reforest the thousands of acres of trees lost to wildfires.

A national study has found the number of trees grown in the nation's nurseries will need to more than double if the United States hopes to leverage its forests to help address climate change.

NMSU plays a critical role in this task through research underway at the John T. Harrington Forestry Research Center at Mora, part of the NMSU Agricultural Experiment Station.

Owen Burney, associate professor and superintendent of the forestry research center, is among the 18 scientists from across the nation who contributed to a study discussing ways to address the infrastructure for reforestation. The study – titled “Challenges to the Reforestation Pipeline in the United States” – was published this spring by the science journal *Frontiers in Forests and Global Change*.

“We have some major gaps in the pipeline,” Burney said. “Especially in the Southwest region. In New Mexico, we

currently have 1 million to 2.6 million acres that need reforestation, which would require 150 to 390 million seedlings. Current seedling production capacity in the state is approximately 300,000 per year.”

The reforestation pipeline has four major components: seed collection, nursery production, seedling planting and post-planting activity.

Besides having enough seedlings to completely reforest the wildfire-scarred landscape, the survival of planted seedlings is a major issue.

“From nursery protocol to post-planting, we are conducting several studies to address the issue of plant survival in the Southwest,” Burney said.

Since 2017, NMSU has practiced a first-of-its-kind nursery irrigation protocol designed to train tree seedlings to function with less water and adapt better to the harsh planting site.

Burney and his research team have discovered physiological changes in the seedlings' xylem, the vascular tissue in plants.





Staff at the John T. Harrington Forestry Research Center plant tree seedlings.

Cecilia Smith

“Through microscopic analysis of the xylem elements, we discovered that there was a greater abundance of the hydraulically active xylem in seedlings that were stressed,” he said.

In addition to the nursery research, Burney’s team is investigating how to plant trees on the landscape. The team also is evaluating different planting strategies to create tree islands that imitate natural tree regeneration.

“Nucleation planting, or tree islands, is a type of planting strategy that emulates natural regeneration patterns while potentially reducing the costs and resources that

go into reforestation,” Burney said. “This tree island strategy has never been used before in the Southwest. So there are many unknowns, including the role of planting density and the size of the tree island. Both of these factors can have an influence on seedling survival as well as future water resources.”

After planting, seedling survival and growth continue to face challenges, including big animals.

“A significant threat to planted seedlings is the high likelihood that they will be eaten by elk and deer,” he said.

“Our research is looking at different treatments, from costly fencing to individual tree shelters, that help to protect planted trees.”

To address the role of forests in climate change mitigation, New Mexico Sen. Pat Woods introduced a bill during the 2021 legislative session to establish the New Mexico Reforestation Center. Under the proposed legislation, NMSU would partner with Highlands University and the University of New Mexico to establish the center, where researchers would study

the impact of climate change on the state’s forest and address reforestation needs.

“We are at a pivotal moment in time where we can make a huge impact on the battle against climate change,” Burney said. “Sadly, one of the greatest tools we have to fight this battle is incomplete. Therefore, it is critical that we invest in the entire reforestation pipeline to address the urgency and scale of the climate problem while simultaneously supporting water resources, forest products, wildlife habitat, recreation and many other valuable resources forests provide.”



Doug Cram

An NMSU student ignites a backfire during a prescribed burn training in 2012.

## NMSU Extension promotes benefits of prescribed burning

Using fire to promote and manage healthy ecosystems through prescribed burns is a practice relatively underutilized by New Mexico private landowners.

The NMSU Cooperative Extension Service is actively involved in training stewards of the land to use this method for ecological maintenance and restoration of rangelands and forests.

“Folks in other parts of the country have used fire for many years as a management tool; however, New Mexico does not have a similar culture of burning,” said Doug Cram, NMSU Extension forestry and fire specialist. “Part of the reason behind this burning deficit is the lack of a legal framework that defines liability. As a result, landowners have been unable to obtain liability insurance to cover the practice.”

There are many benefits to using prescribed burns, including wildland fire hazard reduction, watershed resilience, forest management, rangeland improvement, invasive species management and community protection.

“Fire is a part of our forests, woodlands and rangelands across New Mexico,” Cram said. “We have to learn to live with that possibility and be prepared for it.”

Cram conducts workshops on prescribed burning and uses knowledge from his forest research and Extension programs to teach individuals how to make their properties resilient and families ready for a fire.

“My work focuses on pre-wildland fire,” he said. “I work to reduce forest fuels and train landowners to use prescribed fire and build resilient homes, properties and neighborhoods, so when wildfires burn, it is not a defining event for people or landscapes.”

— Jane Moorman

# HOME AWAY FROM HOME

## Native students find a community at NMSU

BY AMANDA BRADFORD

For any student who leaves their rural hometown to start college in a larger city far away, the transition can be tough. Making new friends and finding a sense of belonging in a new place is not always easy – and for many Native American students, it's a big shift to leave a deeply rooted, close-knit community.

Of NMSU's roughly 14,200 students, about 2.3 percent identify as American Indian or Alaskan Native. In the College of ACES, Indian Resource Development works to connect tribes, businesses, high schools, colleges and universities throughout New Mexico, building career pathways through camps, internships and economic development programs. NMSU's American Indian

Program also provides services and resources to help Native students acclimate to the diverse campus and achieve success in their studies.

Two Native students in the College of ACES found that sense of belonging through the mentors, clubs and organizations that turn a department into a community.

### *Rachel Ann Livingston*

Diné student Rachel Ann Livingston grew up in the small community of Baahaali, also known as Breadsprings, New Mexico, just south of Gallup. Livingston, who expects to graduate in December with a bachelor's degree in fish, wildlife and conservation ecology with an emphasis in aquatic ecology and management, said her strongly rooted Native

background sometimes made it challenging to thrive as a student in the more urban setting of Las Cruces.

"When I came to NMSU, I had just moved five hours from home," she said. "I had no other connections besides Dr. Colleen Caldwell, who hired me on as a work-study student in the fish lab."

In Caldwell's lab, Livingston met a new friend, another student with Diné roots, who invited her to join the student chapters of the Wildlife Society and American Fisheries Society.

"When I entered the classroom where the meeting was held, it was full of laughter – just like home," she said. "Everyone knew each other, and even if they didn't, they still



Josh Bachman

Diné student Rachel Ann Livingston plans to graduate in December with a bachelor's degree in fish, wildlife and conservation ecology with an emphasis in aquatic ecology and management.

Elizabeth Riley, an enrolled member of the Pueblo of Laguna, started attending NMSU last fall. She is majoring in environmental science and planning to minor in Native American studies.



Josh Bachman

welcomed you. Here is where I formed a lot of connections, and it made it easier to connect to other students in the classroom setting. The department and joining the student club made me feel a sense of community that I had been missing since moving away from home.”

Livingston was also able to connect with other Native students in her department – an easy task with the talkative bunch.

“Being able to connect with Native friends was great – they somewhat understand the struggles that you face,” she said. “Having someone understand you without really telling them seems a little more relaxing.”

As she looks ahead to her graduation, Livingston hopes to either work for the Navajo Nation Fish and Wildlife department or perhaps continue her education with a graduate degree in a new emphasis. Her work as a student employee with the American Indian Business Enterprise program – a partnership between NMSU’s Arrowhead Center and IRD – has sparked an interest in environmental economics that she’s considering exploring.

Whatever her path, Livingston wants to make sure she’s working outdoors and giving back to the young people in her community by helping them find their own career paths.

### **Elizabeth Riley**

Elizabeth Riley began her studies last fall as an environmental science major, planning to minor in Native American studies. An enrolled member of the Pueblo of Laguna, Riley traces her roots to the Jemez Pueblo and Navajo and Oneida tribes.

Moving across the state to start college during a global pandemic presented extra

challenges for Riley as she navigated the freshman experience of living on campus in Las Cruces.

“It has been somewhat of a struggle to find other Native American students and establish a connection with them due to the pandemic, which cautions us to stay six feet apart,” Riley said. “The online meetings aren’t something I am used to, and being a student who would rather be in the class and interacting with the professors and other students, I have had to make quite the adjustment.”

Still, she said NMSU was her first pick when applying to colleges, in part because of the sense of belonging she experienced during her campus visit – something no other campus she visited seemed to offer.

Once on campus, Riley became a manager for the women’s basketball team and found a position as a student worker in the College of ACES Academic Programs office.

“Since I started working there in October, I have been able to find plenty of resources that have helped me tremendously, whether it be the study rooms in Gerald Thomas Hall, establishing connections with people in my program, or getting to know more about New Mexico State University and all it has to offer,” she said.

With her sights set on graduate school after she finishes her undergraduate degree, Riley said she sees young Native Americans like her as the problem-solvers of the future.

“I am the first one in my family to seek out a degree in STEM,” she said, “and I hope by doing so, I inspire not only the younger ones in my family but everyone around me.”

Colleen Caldwell, leader of the New Mexico Cooperative Fish and Wildlife Research Unit and affiliate professor in the Department of Fish, Wildlife and Conservation Ecology, holds a Trojan trout in her lab at NMSU.

# FORCES

*of*

# NATURE

Co-op researchers take future scientists under their wings on a mission to protect wildlife

BY CARLOS ANDRES LÓPEZ

Josh Bachman



Josh Bachman

**C**olleen Caldwell and James Cain lead a federal research unit housed in the College of ACES, collaborating on a mission to enhance graduate education in the fisheries and wildlife sciences while carrying out critical research to preserve natural resources in New Mexico. Together, they make up the New Mexico Cooperative Fish and Wildlife Research Unit.

Their unit is part of the U.S. Geological Survey's Cooperative Research Unit program, a collection of 40 co-op units in 38 states that research renewable natural resources, participate in the education of graduate students, and provide technical assistance and consultation on natural resource issues as well as continuing education for natural resource professionals.

Since its founding in 1989, the New Mexico co-op unit has initiated more than 192 research projects, totaling \$25 million in funding from federal, state, university and private cooperators, and supported more than 125 students in Ph.D. and master's programs, a group that includes many women and Hispanics. Caldwell and Cain are also affiliate professors in the Department of Fish, Wildlife and Conservation Ecology at NMSU.

"Our job is producing the future scientists who are going to enhance, conserve and protect elk, deer, bear and fish. That's our job," said Caldwell, who joined the New Mexico unit in 1994 and became its leader in 2006. "We also provide free teaching and mentoring of graduate students and undergrads, while bringing in research dollars."

Cain joined the New Mexico unit in 2010 as the assistant leader. He and Caldwell will welcome a third unit member, Abby Lawson, later this spring.

Colleen Caldwell's research centers on the ecological effects of environmental disturbances on aquatic systems, and she primarily studies aquatic contaminants and toxicology, fish physiology and native fish conservation biology.

"We function a lot like a regular faculty member on a day-to-day basis," Cain said. "But our jobs are focused on research, which primarily involves graduate students."

Cain's research interests include wildlife-habitat relationships, population ecology and the influence of management practices on native wildlife species. Currently, he's working on four projects.

In one study, Cain and three students partnered with the Arizona Game and Fish Department, the New Mexico Department of Game and Fish, and the U.S. Fish and Wildlife Service to look at how Mexican wolf recovery is influencing elk populations in Arizona and New Mexico.

In another project, he and four students are collaborating with Texas Tech University, the National Park Service, U.S. Forest Service, Jemez Pueblo, and the New Mexico Department of Game and Fish to study how large mammals in the Jemez Mountains respond to forest restoration treatments such as fire suppression, overgrazing and logging.

"Specifically, we are assessing changes in forage conditions, movements and resource selection of mule deer, elk, black bear and mountain lion as a result of prescribed fires, restoration thinning, and previous wildfires," he said. "The results of this study will allow for more informed design and implementation of restoration treatments that simultaneously mitigate wildfire risk and enhance habitat conditions for these large mammals."

Meanwhile, Caldwell focuses her research around the ecological effects of environmental disturbances on aquatic systems, and she primarily studies aquatic contaminants and toxicology, fish physiology and native fish conservation biology.

One of her current projects involves wild brook trout, an invasive species respon-



Josh Bachman

James Cain, assistant leader of the New Mexico Cooperative Fish and Wildlife Research Unit and affiliate professor in the Department of Fish, Wildlife and Conservation Ecology, studies wildlife-habitat relationships, population ecology and the influence of management practices on native wildlife species.

sible for extirpating native fish across the western United States, including the Rio Grande cutthroat trout in New Mexico. In collaboration with the New Mexico Department of Game and Fish, Caldwell and one of her students introduced genetically engineered brook trout with two Y chromosomes into waterways in northern New Mexico.

“We call them Trojan trout,” she said.

The Trojan trout – some of which also live in Caldwell’s lab in Knox Hall – only produce male offspring, she said, and will theoretically drive the wild brook trout population to 100 percent male and eventual eradication.

“In about five years, we anticipate there will be no more brook trout in these core conservation populations,” she said.

Caldwell also studies managed fish, and earlier this year, she and another student wrapped up a three-year project at Elephant Butte Reservoir involving largemouth bass.

In May, Lawson will officially join the New Mexico research unit, coming from the Patuxent Wildlife Research Center in Maryland. Her research background includes Bayesian hierarchical modeling, demographic parameter estimation, movement ecology, structured decision-making and monitoring program optimization.

“I’m thrilled to join the New Mexico co-op unit, and I’m looking forward to collaborating with faculty and students in the Department of Fish, Wildlife and Conservation Ecology,” Lawson said. “New Mexico’s diverse ecosystems offer a wealth of opportunity to study effects of climate change and species adaptations. For my first project, I will work with the New Mexico Department of Game and Fish to reintroduce white-tailed ptarmigan to their historic range in New Mexico.”

NMSU Ph.D. student Sharon Valverde tracks radio-collared elk in the Jemez Mountains. Since 1989, the New Mexico Cooperative Fish and Wildlife Research Unit has supported more than 125 students in Ph.D. and master’s programs.

Neal Wehrwein



# AVIAN ALARM

NMSU researchers push collaboration to understand 'perfect storm' that killed birds BY JAMES STALEY

Persistent drought, wildfires and a blast of unseasonable cold weather are not uncommon in New Mexico. In September 2020, those forces converged on millions of passing birds during their grueling migration south.

The result: a troubling and unprecedented mass die-off of songbirds regionwide.

NMSU Regents Professor Martha Desmond, who played a leading role in researching the deadly event, calls it a "perfect storm."

It will take another unification of forces to further understand and better document such substantial wildlife mortalities in the future.

"One of the big things is collaborations are important and working broadly across with different organizations," said Desmond, a researcher in the Department of Fish, Wildlife and Conservation Ecology in the College of ACES. "We will very likely be seeing this again."

Those collaborations already have begun through the New Mexico Avian Conservation Partners, a group of scientists and land managers. The deadly event – one that may have killed tens to hundreds of thousands of birds – triggered multiple New

Mexico-based research projects involving specialists nationwide. Many of the birds died in New Mexico, but they were migrating south from other regions.

Observation and data gathering are critical. The die-off was extraordinary, Desmond said, and researchers and birdwatchers simply weren't prepared for what awaited them.

"We'll be ready for it next time," she said.

Not only will scientists like Desmond and NMSU biology professor Tim Wright be on the lookout, but they will also have some help from community members.

Using the iNaturalist app, Allison Salas, a wildlife ecology graduate student at NMSU, created the Southwest Avian Mortality Project, which allows anybody to gather and report information about birds. Corrine Arthur, who

is in the biology graduate program at NMSU, also contributed to the die-off research.

Knowing what to look for in the early stages of a catastrophe is not always intuitive. Trish Cutler, a biologist at White Sands Missile Range, reported some of the initial deaths, Desmond said.

At the time, Desmond and others also knew something was wrong because the birds were acting lethargic and behaving abnormally. They just did not know all the causes.

The birds, as the New Mexico Department of Game and Fish reported, were starving. While the bird die-off did not have a definitive cause, the department said, nearly all the birds were severely emaciated – something Desmond attributes to climate change.

Desmond said wildfires across the United States may have displaced birds, pushed them to migrate early, before they were physically ready for what is already a dangerous journey, and may have altered their flight path.

Drought conditions made the birds food more scarce, which meant they likely could not refuel, she added. Combating that will take an even broader collaboration. Reducing greenhouse emissions is key.

To help, Desmond said, individuals could plant more native trees, shrubs and grasses, which produce seeds and attract insects for the birds to eat. Keeping pets indoors also helps.

"Let's have a smaller (carbon) footprint," she said.



NMSU Regents Professor Martha Desmond is part of a team of researchers studying the deadly event that killed many birds in 2020.

Darren Phillips



Allison Salas

While the bird die-off did not have a definitive cause, nearly all the birds were severely emaciated, according to the New Mexico Department of Game and Fish.



Pramod Acharya, a plant and environmental sciences graduate student, measures carbon dioxide and nitrous oxide emissions at a research field.

# CAPTURING CO<sub>2</sub>

The College of ACES aims to lead a coordinated effort for researchers, organizations and government agencies in New Mexico and throughout the Southwest to enhance long-term biological carbon sequestration efforts. By leading the charge, the college hopes this work will allow for a focused approach to agricultural economic development and policy creation, which, in turn, will benefit sustainability at the state level and beyond.

As part of the effort, Rajan Ghimire, assistant professor of cropping systems, pulls together different researchers at NMSU and other universities and agencies to create baseline studies specific to carbon sequestration in diverse ecosystems throughout New Mexico, and he takes expertise in different research areas and consolidates it.

“There have been isolated efforts on soil carbon research,” Ghimire said. “But ultimately, if we want to get that statewide benefit, we need to work together. We don’t have a carbon sequestration focus in the entire Southwest, so this is the opportunity for NMSU to take the lead – not just in research but also in aiding policymakers and in educational outreach.”

## ACES launches coordinated effort on carbon sequestration and economic development

BY CASSIE MCCLURE

The U.S. Geological Survey defines carbon sequestration as the process of capturing and storing atmospheric carbon dioxide; there are two methods of sequestration: geologic and biological. Geologic sequestration

is the process of storing carbon dioxide in underground geologic formations.

“When we talk about biological carbon sequestration, it’s mainly carbon storage in soil or vegetation. One part captures carbon



Daniel Burton



ACES range science graduate student Ryan Schroeder conducts plant vegetation monitoring at the USDA-Jornada Experimental Range.

in the atmosphere to vegetation and woody biomass and ultimately to the soil. The second part is minimizing loss of carbon already stored in vegetation or soil,” Ghimire said. “Both components are important to increase carbon storage for food production benefits and climate change mitigation.”

Efren Delgado, co-director of the NMSU Center of Excellence in Sustainable Food and Agricultural Systems, is working with Ghimire to build a roadmap that will enable NMSU leadership to create a network of individuals at other institutions and in industry.

“We see where we can bring together and support science faculty from different areas to tackle topics related to carbon sequestration and climate change,” Delgado said. “It has real-world implications with NMSU’s food science program. We are supporting small businesses and food-processing businesses to solve problems throughout the food chain, such as cutting food waste.”

Projects at NMSU are wide-ranging. Some investigate cover crops, such as barley and oat, and others compare tillage systems, soil amendments or various cropping practices. Researchers also are looking at reforestation and forest management options. With the impacts of deforestation, planting new trees to improve soil productivity captures the air’s carbon and ultimately sends it to the ground. Some projects lean on the state’s agricultural roots.

“Many farmers and ranchers are looking for dual-purpose crops that can be grown as cover crops. Grazing cattle on cover crops converts biomass into manure,” Ghimire said. “If you increase carbon in the ground, it improves land productivity and



Akasha Faist

ACES range science graduate student Amberly Barry implements a rangeland restoration seeding project at NMSU’s Chihuahuan Desert Rangeland Research Center.

benefits farmers and society. Incentivizing carbon sequestration – if we sequester this much carbon, what is the dollar value? – is the next step to support farmers and landowners to their economy.”

ACES assistant professor Akasha Faist, a rangeland restoration ecologist, also works with carbon sequestration, but she uses a different approach.

“I spend a good deal of my time thinking about if a system is degraded, what

do we need to do to get it back on track for improved ecosystem services and greater ecological function?” she said.

Faist’s work benefits from shared ACES faculty expertise, which spans multiple disciplines.

“As a rangeland ecologist, one of my primary goals is to maintain plants on the landscape. Whether that involves increasing vegetative cover to provide native range forage or to slow soil erosion rates, my

work has direct relationships to carbon sequestration,” she said.

“While my work is rooted in ecology, bringing in different aspects of agriculture can be very beneficial. Maybe someone has a different system, and they’re thinking about carbon sequestration in their own way,” she added. “We’re all very much interconnected. Even if we all can come at it from our own perspectives, we still share a common goal.”

# SEARCHING for solutions

## Nexus program taps into NMSU expertise to solve food, energy and water challenges

BY ADRIANA M. CHÁVEZ

A new food, energy and water nexus program launched by the NMSU Center of Excellence in Sustainable Food and Agricultural Systems will bring together researchers from across campus to find solutions to problems across New Mexico.

The nexus will unite faculty with different expertise from four colleges – ACES, Engineering, Business, and Arts and Sciences. Housed in ACES, CEFAS is a hub of trans-disciplinary and collaborative research that facilitates and develops sustainable food and value-added agricultural business.

Efren Delago, co-director of CEFAS and associate professor of food science and technology, leads the nexus program with help from Jay Lillywhite, co-director of CEFAS and professor of agribusiness management and marketing. Natalie Goldberg, a former co-director of CEFAS, started the nexus project in the summer of 2020.

“Our goal is to create a roadmap to show the capacity NMSU has to solve specific problems in food, energy and water,” Delgado said. “We will identify situations, then identify faculty who can work to solve these issues.”

Many of these issues will focus on farm and land, food production, and energy and water challenges.

“This approach is extremely important for New Mexico, but our integrated

approach will also help solve bigger problems,” ACES Dean Rolando A. Flores said. “We are located in semiarid land – it’s one of our signatures – so everything we need to look at under that umbrella is giving us a glimpse into similar issues impacting us worldwide.”

Flores pointed to recently announced partnerships with two agrotechnology companies based in Israel, Tal-Ya Agriculture Solution and N-Drip, to study the companies’ signature water-saving systems. New Mexico and Israel both have semiarid land. ACES researchers are evaluating both systems on chile and pecan crops at Leyendecker Plant Science Research Center for potential use in New Mexico.

After identifying issues to address, CEFAS divides planning into four levels.

During the first level, faculty will identify specific aspects of each problem relating to farming, dairy production, water and irrigation, and other related issues. The second level will focus on issues arising after agricultural production, such as transportation, harvesting and supply chain issues. The third level will focus on identifying specific problems in manufacturing.

“There will be strong collaboration in the latter level, especially on issues involving engineering and traceability,” Delgado said.

For example, one issue the third level will explore is how to use product barcodes to let consumers know where items come from, which will make it easier to support local farmers. Another issue is how to obtain additives from dairy industry residual substances that can be hydrolyzed to create value-added products.

The fourth level will focus on distribution and retail and include faculty from ag economics.

“This level includes the distribution of food, resilience aspects and will explore COVID-19 pandemic problems related to production, distribution and labor,” Delgado said.



Josh Bachman



Josh Bachman

Jay Lillywhite, left, and Efren Delgado, right, are co-directors of the NMSU Center of Excellence in Sustainable Food and Agricultural Systems.



From left, ACES professor Manoj Shukla, Chang Liu and Adam Gonzalez explain the N-Drip’s Gravity Micro Irrigation system at the Leyendecker Plant Science Research Center.

# VIEW FROM ABOVE

## NASA satellites aid vegetation research at NMSU

BY TIFFANY ACOSTA

While rangelands and NASA may seem like an unlikely pair, Lara Prihodko is currently working on two projects featuring the collaboration. Prihodko and other ACES researchers have turned to satellites to learn more about Earth's vegetation.

With the ICESat-2 Science Program, which is part of NASA's Earth Observing Mission, the NMSU team is interested in measurements of woody plants such as shrubs and trees.



Wenjie Ji, Robert Wojcikiewicz, Lara Prihodko

A segment of a 3D-point cloud captured by an unmanned aerial vehicle with classified photons overlaid at the Jornada Basin Long-Term Ecological Research site.

“It sounds counterintuitive that a satellite called ICESat-2 that was built to measure ice in the polar regions would be something we would use for rangeland analysis and monitoring,” said Prihodko, a college associate professor of animal and range sciences. “However, ICESat-2 is what we call a photon-counting LiDAR (Light Detection and Ranging) that can measure the precise height of not only the ice or soil surface but also the trees and shrubs growing on the soil. It can be very difficult

to measure the low stature, sparse vegetation you find in environments like ours from space, and so our research team, the Savanna Lab, is working to improve those measurements from ICESat-2.”

Prihodko also is working to measure tree height using a waveform LiDAR on the International Space Station, a collaboration with Qiuyan Yu, a postdoc research associate in the Department of Plant and Environmental Sciences and lead scientist on the Global Ecosystem Dynamics Investigation project. They want to understand the limiting factors for tree height globally.

“In dense forests, it is to some extent much more straightforward to measure many of the properties of the vegetation from space,” Prihodko said. “They are more pronounced in satellite imagery. By contrast, drylands and savannas are more open landscapes with shorter-stature vegetation, which is challenging

to measure well from space. We are interested in calculating the carbon stocks in above-ground woody biomass in dryland landscapes, and we needed the measurements of tree and shrub height, so we set out to improve them.”

The NASA-funded projects are challenging because of the sheer size of the datasets they receive, Prihodko said. In addition to the amount of data the team has to evaluate, the material is very complex and has spatial and temporal components that require an assortment of computing techniques.

“Detecting and interpreting the ways that different land-surface components reflect or return energy from the land surface to the sensor requires a lot of different kinds of knowledge about the properties of the land surface, and in the case of LiDAR, the properties of the laser/photon pulse,” she said.

An ACES faculty member since February 2017, Prihodko also is collaborating with Dennis Dye from the Southwest Indian Polytechnic Institute, a public tribal land-grant community college in Albuquerque, to develop a tool to monitor forage resources from space. Featuring research and educational elements, the project aims to create opportunities for SIPI students to interact with NMSU range ecologists. Depending on COVID-19 restrictions, they hope to host students for the Desert Ecology Short Course at the Jornada Basin Long-Term Ecological Research site in summer 2021.

Josh Bachman



Lara Prihodko, a college associate professor in the Department of Animal and Range Sciences, uses NASA satellites to learn more about the Earth's vegetation.

Dr. Alisha Parada received a bachelor's degree in entomology, plant pathology and weed science from the College of ACES.

Courtesy UNM

# SUPPORT SYSTEM

## Encouragement from ACES mentors helped alumna achieve dream of becoming a doctor

BY CARLOS ANDRES LÓPEZ

**D**r. Alisha Parada was a young mother navigating the challenges of her first year at NMSU when she joined the ACES family. A first-generation college student who grew up in Las Cruces, she first majored in biochemistry. But when she took a student job in the College of ACES, she set forth on a different path – and never looked back.

She met professor Dave Thompson, who became her mentor and encouraged her to transfer into ACES, a move she said set the foundation for her career as a physician.

“Sometimes you find the biggest support in places you never thought about,” said Parada, now chief of the University of New Mexico’s Division of General Internal Medicine. “Working for the college and changing my degree was the best thing I did for myself. It was because of the support I received from the College of ACES that I was able to pursue medical school.”

Parada spent her remaining years at NMSU studying entomology, plant pathology and weed science, a time she recalls as filled with supportive instructors,

friends and family who helped her – and her young son. She earned a bachelor’s degree in agricultural biology in 2001 and briefly considered pursuing a graduate degree in the same field, but ultimately decided to follow another passion.

“I loved forensic entomology,” she said, “but my heart was in medicine. And so, I ended up moving to Albuquerque to pursue medical school.”

She started medical school at UNM the same year her son started kindergarten, and she earned an M.D. in 2008, becoming a board-certified general internist. Today, as the head of the one of the largest divisions in the Department of Internal Medicine at the UNM School of Medicine, she oversees 40 faculty members who specialize in general internal medicine and geriatrics. For eight years, she served as the medical director for Southwest Mesa Clinic, one of the largest clinics in the UNM system for primary care.

Last spring, as she witnessed the onset of the pandemic, Parada and other medical leaders at UNM recognized the need to create a centralized clinic for non-hospitalized

COVID-19 patients to receive outpatient care and information about the disease. She started the UNM COVID-19 Follow Up Clinic and COVID-19 Antibody Infusion Center in April 2020, serving as the medical director.

“One of my biggest goals is to provide health equity for our population,” she said. “That was one of my biggest motivating factors in starting this new clinic because we all know that COVID hits people disproportionately. For me, trying to make sure that people are getting equitable care is really important.”

As an undergraduate at NMSU, Parada saw first-hand how mentors can shape the lives of students, and today, she strives to be a role model for students, especially underrepresented minorities.

“Never give up,” she said. “If you really want to achieve your goals, you can. Sometimes it’s challenging, especially when the obstacles you’re facing seem overwhelming, but it is possible. I was fortunate to have some great mentors, and I hope to help students in a similar way.”

# Mesilla restaurateur aims to help, inspire Aggies

BY MELISSA RUTTER

**R**ussell Hernandez graduated from the College of ACES with a bachelor's degree in agricultural economics and

agricultural business, but it was no easy thing. He balanced a 50-plus-hour workweek while taking up to 21 credit hours each semester,



acting as an ACES ambassador and serving on several student organization councils.

And, yet, he still asked himself, "What else can I get my hands on?"

Hernandez is now the owner and operator of Salud! de Mesilla, an eclectic restaurant that has received local and national acclaim. He also spends time serving on the HRTM Advisory Board and giving guest lectures to ACES and business classes at NMSU. He also founded the Thyme of Your Life Endowed Scholarship in 2019, which aims to aid and inspire Aggies following his footsteps in the hospitality industry.

"I grew up in the College of ACES. From professors to staff to fellow students, everyone is like family," he said. "It is important to remember how these individuals supported and made it manageable during my tenure and to help give back in a meaningful manner that helps our future generations."

Hernandez encourages students to make connections and get hands-on experience while in college.

"Be open to change," he added, "as you may find something else that you love to do while you are working on your degree plan."

Russell Hernandez, who owns and operates Salud! de Mesilla, has a bachelor's degree in agricultural economics and agricultural business from the College of ACES.

# Longtime ACES supporter leaves lasting impact

BY ADRIANA M. CHÁVEZ

**R**andy Farmer, a 1976 NMSU graduate and loyal supporter of the College of ACES, received the 2020 James F. Cole Memorial Award for Service for his ongoing contributions to the college's Department of Plant and Environmental Sciences.

Farmer has a bachelor's degree in agriculture and horticulture and an honorary master's degree in agriculture from NMSU. Last year, he and his wife, Cindy, were recognized as Outstanding PES Alumni, and in 2002, he was named Citizen of the Year by the Las Cruces Chamber of Commerce.

A member of the Sam Steel Society, Farmer has made major contributions to the NMSU Landscape Demonstration Garden and served as the driving force for the Landscape Technician Program at Doña Ana Community College. He and his wife started an endowed scholarship that aids five to six PES students each year, and he has been instrumental in encour-



aging other alumni to plan their own endowed scholarships.

Farmer formerly owned The Greenhouse in Las Cruces, a landscaping business that built playground equipment, playing fields and shade structures. He would hire many NMSU students, giving them an opportunity to build their résumés while attending school. After closing his business, Farmer donated two acres of boxed trees to the city of Las Cruces. He is now a partner with Genesis Builders, Inc., where he helps businesses reshape and grow.

Farmer and his wife also donated 12 Cedar of Lebanon trees to NMSU to honor storytellers from the Las Cruces area. The couple has two daughters, Laura and Lisa, who are also graduates of NMSU.

Randy Farmer, a longtime supporter of the College of ACES, has a bachelor's degree in agriculture and horticulture and an honorary master's degree in agriculture from NMSU.



Klaus Wiemer, scientific director and co-owner of Poma Fertility in Kirkland, Washington, earned a master's degree in reproductive physiology from the College of ACES.

Courtesy

# Fertility specialist found his passion at NMSU

BY AMANDA BRADFORD

As he reflects on his time at NMSU, Klaus Wiemer said he now realizes that the years he spent on campus prepared him for the challenges in life. Wiemer, a leading American embryologist, earned his master's degree in reproductive physiology from the College of ACES and went on to a Ph.D. from Louisiana State University.

"Dr. Jack Ruttle was my professor and mentor. He took a young man without much direction and drive and helped him look within himself and find his real passion in life," Wiemer recalled. "Dr. Ruttle and all the faculty at NMSU took great interest in

me and always gave me the time needed to help find my way."

Wiemer, who is now the scientific director and co-owner of Poma Fertility in Kirkland, Washington, takes delight not only in the science of his work, but also in helping people become parents. He has many years of experience and leadership in the fertility industry in the United States and has acted as an off-site director of fertility centers in Spain, Argentina, Peru and Canada. He is a sought-after consultant and speaker at professional meetings in the U.S. and internationally, and has published more than

80 peer-reviewed articles and book chapters on a wide range of topics in clinical embryology.

Wiemer, who received the Distinguished Alumni Award for the College of ACES in 2020, said he is dedicated to mentoring generations to come at NMSU. He serves as a guest speaker and advisor to students while advocating areas of employment that are underserved within the animal science industry.

"I left NMSU a completely changed person," he said. "I knew what I wanted in life, and NMSU helped give me the tools to achieve my dreams, hopes and aspirations."

Angel Mendez



## Marion Lawrence, 1940-2021

HRTM and ACES supporter

Through her generosity, Marion Lawrence touched the lives of many NMSU students, faculty, staff and alumni. HRTM meals, events and classes would not be the same without her support. She gave NMSU a gift of \$250,000 to establish the Bobby Lee Lawrence Academy of Wine, a beverage management laboratory inside Gerald Thomas Hall named after her husband, who was known as the "Southwest Wine Guy." The lab expanded the number of academic courses and educational outreach opportunities for the community.

For many years, Lawrence served on the HRTM Advisory Board, and she was a member of the 1888 Society who included NMSU in her estate plans. Her devotion to wine education and etiquette will continue through her many contributions.

Courtesy Ann Mobley



## Thomas Mobley Jr., 1937-2020

1961 ACES graduate and 1994 Distinguished Alumni Award recipient

A longtime Las Cruces banker, Thomas Mobley Jr. became a prominent figure in the New Mexico agricultural industry and NMSU community. He served as president of the NMSU Alumni Association and was a member of the NMSU Foundation Board of Directors, the NMSU Aggie Scholarship Association and the President's Associates Board.

In 1987, Mobley was named Citizen of the Year by the Las Cruces Chamber of Commerce, and in 1994, he received the Distinguished Alumni Award for the College of ACES. He also served on many boards and committees, including the New Mexico Farm & Ranch Heritage Museum Board of Directors, New Mexico Farm & Ranch Heritage Foundation, Mesilla Valley Hospice Board of Directors and the Memorial Medical Center Professional Advisory Committee.

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