



# animal & range sciences newsletter

Summer 2018 • Volume 11, Issue 1

## MSU Range Club Teams Score Big at International Range Management Competition



The MSU Range Club, a group of 11 students focused on rangeland ecosystems and management, attended the 2018 Society for Range Management Annual Meeting held Jan. 28 – Feb. 2 in Sparks, Nevada. The club finished first in overall scoring at the event, winning the SRM Collegiate Trail Boss Award, a traveling award given to the national collegiate team with the highest aggregate score for both accomplishment and participation. Photo courtesy of Gary Reese, SRM 2018 Annual Meeting

*Story by Jenny Lavey on page 4*

As we finally move away from the lingering winter days and say happy trails to another group of graduates, we reflect on another successful year in our department. One of the biggest accomplishments was the approval of the Ranch Management Program. Alumna Risa Scott (82') committed to provide \$2M in funding to support the development of MSU's Ranch Management Program. The gift was made in honor of Risa's father Dan Scott, longtime manager of the Padlock Ranch in Southeast Montana. Numerous other individuals, including Ken Wilson (8 Mile Ranch) and Dave Luschen (Switch Back Ranch), as well as other entities, have provided sufficient support so that this program can move forward.

In March, we had the opportunity to present a department update to President Cruzado, Provost Mokwa, and Dean of the College of Graduate Studies, Karlene Hoo. I would like to share with you some of the highlights. Our student enrollment continues to grow with current numbers around 400 students. In 2017, our faculty (TT and NTT) taught 189 credits of courses directly impacting over 2100 students. The overall student rating of our faculty and courses, with 1900 students responding, was 4.5 out of 5. Our faculty and program has one of the highest ratings on campus. In 2017, our extension faculty delivered over 200 programs reaching close to 10,000 individuals. In addition, they have spent 1,000s of hours collaborating with extension agents, producers, land managers, and others involved in Ag and natural resource management. In 2017, our extension team was operating on over \$1 million in competitive grant funds.

Our research team produced over 130 scientific publications including peer reviewed articles and media and popular press products. In 2017, our department's research program operated on slightly over \$4 million in active grant that they competed for on either a regional and national level. Our graduate program is going strong with 18 MS and 10 PhD students.

I would like to commend Drs. Craig Carr, Jennifer Thomson and Carl Yeoman on their soon to be tenure and promotion to association professor.



Dr. Patrick Hatfield  
Department Head

Congratulations to the range students on their top honors at the Society of Range Management meeting in Sparks, Nevada. Taking first place overall with 25 schools from three countries competing is a remarkable accomplishment for our students. Thanks to Coaches Craig Carr and Merrita Fraker-Marble for their outstanding service to our students.

And, while the search to fill the position of Sheep Extension Specialist is almost complete, we have started a nationwide search for the Beef Extension Specialist. We look forward to having two new individuals that will continue the importance of our outreach programs throughout the state.

And, finally, I'd like to express my gratitude to a gentleman who has served this department faithfully for over 35 years. Dr. Jim Berardinelli will be retiring from MSU in June. He is the recipient of the 2018 WSASAS Western Distinguished Service Award and will be honored later this summer. Jim has been integral to the success of this department and we wish him the best in retirement.

We hope our newsletter offers you some of the things that have been happening in our department over the last few months and we are looking ahead to another successful year. Have a great summer!



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For the first time in university history, a group of Montana State University agriculture students dedicated to plant identification and range management, took home a traveling national trophy, two national team titles and three first-place student awards in national exams.

The MSU Range Club, a group of 11 students focused on rangeland ecosystems and management, attended the 2018 Society for Range Management Annual Meeting held Jan. 28 – Feb. 2 in Sparks, Nevada. The club finished first in overall scoring at the event, the first time ever by an MSU club, according to organizers. The annual SRM competition included a week-long schedule of events and featured 25 universities across the U.S., Canada and Mexico.

The club's performance won them the SRM Collegiate Trail Boss Award, a traveling award given to the national collegiate team with the highest aggregate score for both accomplishment and participation. "They did extremely well and we're so proud of these students," said **Craig Carr**, assistant MSU professor of rangeland ecology and range club faculty adviser. "The overall success of the team speaks directly to our program, our curriculum and the faculty here. The fact that the entire team did so well as a collective group means that they're working extra hard and that we're building a strong team."

Carr, who teaches in the Department of Animal and Range Sciences in the College of Agriculture said the students who make up the teams competed and ranked among the best in the country and beyond.

The MSU Plant Identification Team was awarded fourth place overall in the society's Range Plant Identification Exam, a two-and-a-half-hour long exam where competitors must correctly identify 100 mounts of plants commonly found in western North America. The exam draws from 200 species of plants; those on the exam may be duplicates or presented at varying stages of growth. Out of 150 students who took the exam, only 44 students scored greater than 60 percent, according to Carr.

The MSU Undergraduate Range Management Exam team won second place overall in the society's Under Graduate Range Management Exam. The comprehensive two-hour exam focuses on plant biogeography, vegetation, range ecology, soils, carbon sequestration, grazing management and animal nutrition. The exam is so



MSU senior Noah Davis from Ventura, California, finished first place in the range management exam as well as first place for the highest combined score between the range and plant exams at the SRM Annual Meeting in Sparks, Nevada. Davis is pictured with NRCS Representative and Acting National Rangeland Management Specialist Charles Kneuper and SRM President (2017) Larry Howery. Photo courtesy of Gary Reese, SRM 2018 Annual Meeting

rigorous that the top 10 percentage of students who pass, are given a waiver of the competency exam required of a professional certification in range management.

MSU adjunct professor Merrita Fraker-Marble coaches the MSU URME team and said the goal of the exam is to challenge students to apply of their knowledge from their coursework and in logical and analytical concepts during the exam. “Many of the exam questions come directly from published research in the field, so a lot of the preparation for the exam is interpreting statistics and data to real-life examples in the field,” she said. “I’m very proud of the MSU team, they’ve shown that the curriculum and preparation we’ve given them is placing them in top percentage internationally.”

Senior Noah Davis from Ventura, California, finished first place in the range management exam as well as first place for the highest combined score between the range and plant exams. “The hardest part about the URME wasn’t the questions themselves, it was managing your time to answer all the questions in the two-hour window,” Davis said. “Equally as challenging, the plant identification exam had some mounts that didn’t look like anything I had seen before; many lacked all but one obscure identifying characteristic.”

Ben Roeder, a junior from Fort Shaw, finished first in the society’s Undergraduate Extemporaneous Speaking Contest. Competitors are charged with delivering a well-articulated oral presentation on a current range management topic they have been given, in a structured manner.

Club members who are on one or more of the teams practice weekly with their coaches outside of class time. Each year, the club holds a holiday fir-tree sale where the proceeds go to funding the trip to the SRM annual meeting. Performing well in the competition can provide students with the exposure and professional contacts that may help them in their future careers, according to Carr. “It’s rare that a student will graduate this program without a job, or at least a job offer,” Carr said. “For many of these students, what they’re passionate about and what they love to study translates into employment fields that are in high demand for qualified professionals. Performing so well as a team at the national level, I hope, calls attention to the value and uniqueness of range management studies at MSU.”

Team members who competed in the URME were: Haylee Barkley, a freshman from Baker majoring in natural resources and rangeland management; Tristan Bess, a sophomore from Wilton, California, majoring in natural resources and rangeland management; Victoria Chulyak, a senior from Tehachapi, California, majoring in natural resources and rangeland management; Davis; MacKenzie Foust, a senior from Moiese majoring in natural resources and rangeland management and Nicholas Hurtz, a senior from Putnam Valley, New York, majoring in natural resources and rangeland management.

Team members who competed in the plant identification contest were: Alyson Christians, a senior from Helena majoring in natural resources and rangeland management; Barkley, Chuylak, Davis, Foust, Michael Hamel, a senior from Chester majoring natural resources and rangeland management; Hurtz; James Kramer, a freshman from Dillion majoring in natural resources and rangeland management; Rachel McKenzie, a freshman from Candby, Oregon, majoring in agricultural business and Roeder.

The Society for Range Management is the professional scientific society and conservation organization whose members are concerned with studying, conserving, managing and sustaining the varied resources of the rangelands which comprise nearly half the land in the world. Established in 1948, the society has over 4,000 members in 48 countries, including many developing nations.

## MSU's New Wool Lab Director Carries on Tradition of Serving Montana and Beyond

As sheep across the country are shorn of their winter fleeces, wool samples are once again piling into Montana State University's Wool Lab.

**Devon Ragen**, who became Wool Lab director in February, is taking it in stride. "I have my work cut out for me," she said. "Just last week I got almost 500 samples."

The wool samples, which are packaged in small plastic bags, have been sent by sheep ranchers throughout Montana as well as from far-flung states including Michigan, Pennsylvania and Georgia.



MSU's Wool Lab is one of the only facilities in the nation that provides detailed analysis of wool quality — valuable information for ranchers when it comes to selling their product and breeding their flocks. Ragen is already well-practiced with the lab's primary tool, a computerized device that scans a finger-sized piece of wool and measures the diameter, curvature and variability of the fibers. Fine, soft wool will fetch a higher price and be made into shirts or underwear worn against the skin, Ragen explained, while coarser wool will be used by hand-spinners or to make carpet or insulation.

In mid-March, Ragen took a portable fiber analyzer to Helle Rambouillet, a third-generation sheep ranch near Dillon that supplies wool to Duckworth Co., a Montana maker of T-shirts, socks and other woolen goods. Over the course of three days of shearing, Ragen measured the fibers from more than 1,500 fleeces to ensure that Duckworth would receive the consistently fine, soft wool it needs.

The Wool Lab was established and funded in 1945 by the Montana Legislature in response to wool growers' calls for a facility that could provide them with technical information to improve their flocks. That was a great investment, according to **Pat Hatfield**, head of the Department of Animal and Range Sciences in MSU's College of Agriculture.

"Montana has the best wool in the nation, and that has a lot to do with the Wool Lab here," Hatfield said. For decades, MSU's wool programs have focused on helping the state's producers breed sheep with high-quality wool, he said, "and you can't do that without the analytical data."

According to the Montana Wool Growers Association, Montana ranked fifth in the nation for its wool crop in 2016. The state's ranchers produced 1.8 million pounds of wool valued at \$3.42 million.

Each year, the Wool Lab receives more than 10,000 wool samples, primarily from Montana, according to Hatfield. The only other wool labs in the country are a commercial lab in Denver and a lab similar to MSU's at Texas A&M University in San Angelo, he said.

According to Ragen, who earned her bachelor's and master's degrees in animal science from MSU, the Wool Lab can offer its services at affordable prices because it is part of the university.

The Wool Lab also partners with MSU Extension to operate "wool pools" in which ranchers combine their product to get better prices in a competitive market. Ragen will travel throughout the state — including to Plentywood, Wibaux, Malta, Chouteau and Missoula — to analyze fleeces and sort them into different grades of quality, which further helps the participating wool growers sell their product. Last year, 89 wool growers participated in the eastern Montana pool to sell 98,000 pounds of wool for \$180,500 — about 5 percent of the state's total wool crop.

Ragen has all that ahead of her — and more — this season. But she wouldn't mind if even more wool samples piled up. "We'd like to get the message out that we're here to help," she said.



Devon demonstrates use of a portable wool fiber analyzer at the Wool Lab on the campus of Montana State University



## JT Saunders, you are *PURE GOLD!*

*JT Saunders is a staff member of the Department of Animal and Range Sciences on the MSU Bozeman campus. The following is his Pure Gold Award nomination submitted by his colleague Patrick Hatfield.*

"Make hay while the sun shines" was the mantra for JT Saunders, Red Bluff Ranch Manager, when just as haying operations were to begin in late June, unexpected staff departures dramatically affected the crew at the Bozeman Agricultural Research and Teaching Farm, near the MSU campus.



Understanding the predicament of the farm operations, JT, without hesitation, drove 80 miles round-trip daily from Red Bluff to Bozeman, worked exhaustive days, and spearheaded the harvest of more than 460 acres of hay.

During this same time, the Lodgepole Fire burning in central Montana weighed heavily on JT, having grown up in this rural area and knowing many of the people in the communities impacted by the blaze. With modest foundation funds, he worked with Bozeman Costco to purchase 9,000 bottles of water. After work, he and a co-worker drove through the night to deliver the water to the Winnett Volunteer Rural Fire Department. After unloading the pallets of water, they immediately returned to Bozeman to resume haying the next day.

Even with taking on additional labor-intensive responsibilities, JT still managed his duties at Red Bluff. For his inspirational and selfless dedication, JT Saunders gets my support for making a "Pure Gold" impact.



## MSU students get hands-on experience with calving

Just like ranchers across Montana, Montana State University student Caleb Bowey kept a watchful eye on heifers on a late February day, waiting for one to give birth. “Most of these are due tomorrow,” said Bowey of the dozen pregnant cattle hanging around the front of the calving barn. “But you can only guess. When it happens, it happens.”

That’s when Bowey and other MSU students jump into action, leading a heifer into the warmth of the barn, pulling a stuck calf out of the womb or helping the newborn onto its feet to nurse. “I didn’t have a lot of experience (with calving),” said Bowey, a junior from Sheridan who is majoring in agricultural education. “But to be out here and learning, I’ve really enjoyed it.”

Bowey works on MSU’s 474-acre Bozeman Agricultural Research and Teaching Farm to earn money while studying at MSU; other students gain experience with this foundational ranch activity by enrolling in a sophomore-level course called calving management.

“We’d be calving no matter what because this is a working ranch, but it’s also an opportunity for instruction,” said Hannah DelCurto Wyffels, who teaches the calving course as an instructor in the Department of Animal and Range Sciences in MSU’s College of Agriculture. “That’s the purpose of the MSU herd,” which is owned by MSU’s Montana Agricultural Experiment Station. About 50 heifers were expected to give birth this year at MSU’s Bozeman farm.

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Makae Nack, a sophomore majoring in animal science, had helped with calving on her family's ranch near Geraldine but took the class to get more formal training. "I've learned some new things," she said. DelCurto caps the class enrollment at 15 students "so that everyone has an opportunity to handle the cattle," she said. "We want it to be hands-on."

Starting in January, DelCurto's students met at the farm each week for instruction about calving practices. During that time she also conveyed the demands of this unconventional course: rotating five-hour shifts, often at night, sometimes in subzero temperatures or snowstorms.

"Some students grew up doing this and it's second nature to them, and others have never experienced it before," said Tyrell McClain, MSU's assistant livestock operations manager, who also helps instruct the students.

Some students ventured to Judith Gap to help with calving on the EL Peterson Ranch, which has partnered with the MSU class for several years. The partnership provides additional cattle for the students to handle and a different experience for those who want it, according to DelCurto.

Dana Melcher, a sophomore majoring in animal science, was part of a four-person team that pulled five calves in three days at the EL Peterson Ranch. "You try to stay as calm as possible and work with (the cattle)," she said. "There's a lot to it."

The Department of Animal and Range Sciences also offers a couple of internships to help with the calving of the MSU herd. Brooke McCleary, a senior majoring in animal science, interned to learn about new practices she might take back to her family's ranch near Roundup after she graduates.

"Every operation does it a little differently," she said, "so it's interesting to see how it's done here." Once the calving is done in March, the students in DelCurto's class write a paper about their experiences and share their stories with their classmates. "With calving, no two situations are exactly alike," DelCurto said. "It's pretty unique that students have an opportunity to do calving just a mile from campus," she said. "It's such a great classroom."



Montana State University students Brooke McCleary (left), Makae Nack and Caleb Bowey keep an eye on calving heifers at the MSU Bozeman Agricultural Research and Teaching Farm.

## MSU culinary staff connect with local Ag community whose product feeds campus

Montana State University's chefs like to know where their local ingredients come from, and last week they returned to campus with mud on their boots to prove it.

During a visit to MSU's Red Bluff Research Ranch near Norris and Montana Highland Lamb south of Whitehall, 10 MSU culinary staff and administrators got a firsthand look at the barns and pastures where lambs ultimately destined for MSU's Miller Dining Hall begin their days.

"It's important for cooks to understand, as often as we can, where our food comes from," said Dwayne Gulley, MSU's executive chef. "It gives a better appreciation for (the animals) and how they're raised."

Highland's Jenny Scott, who co-runs the small ranch with her husband, Dave, guided the MSU guests through a straw-filled lambing barn and alongside outdoor yards where the recently born lambs reposed in plastic warming huts, their fresh coats as white as the snow-covered foothills. Beyond a fence was the pasture where the young sheep will graze from May until September. "Lots of people have a distributor bring meat (to their customers), but I like to meet people in person," Scott said. "It's kind of a friendship."

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Montana State University assistant professor Tom Murphy, right, guided MSU culinary staff on a tour of MSU's Red Bluff Research Ranch to learn more about where they source lamb meat.

Highland sells lamb to restaurants and food stores in Bozeman, Helena and Butte, as well as in smaller towns closer to Whitehall. But MSU is the ranch's biggest customer, according to Scott.

"We were inspired and happy when they started buying from us," which was about three years ago, Scott said. Head chef Gulley is fond of using the meat for kebabs, stews or large roasts smoked rotisserie-style. "It's super-popular," he said. "It's kind of surprising, especially considering the age group we're serving."

MSU buys meat, vegetables, fruits and other ingredients directly from more than 100 local producers, according to Kara Landolfi, coordinator of MSU's Farm to Campus initiative. Since 2005, the program has sought to use MSU's large purchasing power — a result of serving more than 12,000 meals daily — to support Montana agriculture, she said. Currently, MSU spends more than \$1.5 million annually on Montana-sourced foods, or about 25 percent of the university's total food purchases.

"It's an opportunity to develop a connection that you don't get when ordering commodity products," said Landolfi, who has organized several staff tours of local ranches, farms and food manufacturers, including Lazy SR Ranch near Wilsall and Wilcoxson's Ice Cream in Livingston.

MSU students and alumni are often part of that connection. That's especially the case at Red Bluff, where about 10 MSU undergraduates work each semester as interns or paid staff, learning the ins and outs of raising sheep.

"We try to keep this hands-on for students," said **Tom Murphy**, assistant professor in the Department of Animal and Range Sciences, as he led the culinary staff through the barn at Red Bluff, where spring comes late and the pregnant ewes were just beginning to give birth.

Red Bluff began selling upwards of 60 lambs per year to MSU Culinary Services about a year ago, Murphy said. All are males that aren't being kept as replacements in MSU's ram development program at the Fort Ellis Research Farm.



MSU executive chef Dwayne Gulley, left, pets a lamb held by Jenny Scott, co-owner of Montana Highland Lamb near Whitehall, Montana, during a tour of the ranch.

Prior to that the facility was selling the lambs on the open market. Having the meat prepared and served to the MSU community completes the circle that begins when the students help bring lambs into the world and then tend the flock, Murphy said. It's also a great way to introduce many students to lamb meat, which in the U.S. is consumed at a rate of only about one pound per person annually, he added.

Producers like Jenny Scott, in exchange for showing the MSU staff their operation, are invited to Miller Dining Hall to see — and taste — their product on the plate.

The day that Scott came to MSU, Gulley had prepared her lamb, she recalled, smiling. But by the time she grabbed a tray, the lamb was all sold out.

The 2018 Montana Nutrition Conference and Livestock Forum was held in April at the GranTree Inn in Bozeman. Over 130 people were in attendance for the two day event that featured 10 speakers. The theme of the conference was “Drought Resource Management”. We would like to thank our Gold sponsors: Alltech, Cargill, CHS, Hubbard Feeds, Micronutrients, Montana Feed Association, Quality Liquid Feeds and Zinpro; Silver sponsor: Performix; Bronze sponsors: Arm & Hammer, Intermountain Farmers Association, Simplot, Stockman Bank, Ward Laboratories, and Waddell & Reed. Break Sponsor: Northwest Farm Credit Services



Dr. Emily Meccage gives her presentation on “Alternative Forages”



Dr. Megan van Emon gives her presentation on “Forage Sampling and Analysis”



Dr. Pat Hatfield presents poster winner awards.



Left: John Gates, Northwest Farm Credit Services, welcomes conference attendees.



Right: Danielle Peterson presents “Forage Storage Techniques and Impacts on Quality”.

The poster competition was sponsored by Montana Feed Association (Graduate) and Zinpro (Undergraduate).

Graduate Student Winners:

First Place: Sam Wyffels

Second Place: Gabrielle Blanchette

Third Place: Erika Nunlist

Undergraduate Student Winner:

Noah Davis

All the posters will be on display in the ABB Building. Congratulations to all the students!



Sam Wyffels and Dr. Megan Van Emon



Noah Davis and Dr. Megan Van Emon



# 2018 Wool Harvesting School



# 2018 Wool Harvesting School



A few Bozeman 4th graders went to BART Farm for a demonstration of the canulated cows. They were pretty excited about the hands-on experience and learning how the ruminants digestive system works.



A student looks into the microscope to view rumen microbes and learn how they work in the digestive system of the cow.



Sam Wyffels, graduate student, watches as this 4th grader sticks his hand into the cow to feel the rumen.

**Sarah Blatter** completed her MS Thesis entitled *“Evaluation of molecular mechanisms impacting beef quality and carcass characteristics.”* Sarah’s advisor was Dr. Jennifer Thomson.

**Jarrett Payne** completed his MS Thesis entitled, *“Can Targeted Cattle Grazing Increase Abundance of Forbs or Arthropods in Sage-Grouse Brood-Rearing Habitat?”*. Jarrett’s advisor was **Dr. Jeff Mosley**.

**Torrey Ritter** completed his MS Thesis entitled, *“Ecosystem Pioneers: beaver dispersal and settlement site selection in the context of habitat restoration.”* Torrey’s advisor was **Dr. Lance McNew**.

**Anish Sapkota** completed his MS Thesis entitled, *“Effect of Boron on alfalfa yield and quality at various water regimes.”* Anish’s advisors were Drs. **Emily Meccage** and Jessica Torrior.

**Skylar Vold** completed his MS Thesis entitled *“Effects of livestock grazing management on the ecology of grassland birds and their predators in a northern mixed-grass prairie ecosystem.”* Skylar’s advisor was **Dr. Lance McNew**.

**Tom Groneberg**, Farm Operations Manager, is a published author! As part of the College of Agriculture’s 125th year-long celebration, the college hosted “In the People’s [outside] Interest”, a reception and book fair to celebrate and feature College of Ag retirees, faculty and staff members who have written and published texts outside of their work for MSU. These two heartwarming memoirs – “The Secret Life of Cowboys” and “One Good Horse” – can be found on Amazon.





In February, **Elizabeth Flesch** was awarded best presentation at the Montana Chapter of the Wildlife Society annual conference in Butte, Montana. The conference provides a forum for invited speakers and member presentations, and topics focus on those issues of particular importance or interest to Montana wildlife professionals. Her talk was entitled “Evaluating sample size to estimate genomic relatedness in bighorn sheep populations.” Elizabeth’s advisors are **Drs. Jennifer Thomson** and Bob Garrott (Ecology).

In April, **Dr. Jennifer Thomson** participated along with faculty and graduate students across campus in Expanding Your Horizons. The day-long program offers creative hands-on workshops designed for girls in grades 6, 7 and 8 to explore science, technology, engineering and mathematics (STEM). Dr. Thomson presented on the applications of livestock genomics and participants extracted cattle DNA.



Four Animal and Range Sciences students participated in the Regional Academic Quadrathlon at BYU-Idaho in Rexburg, Idaho, April 5 & 6. The participants were **Angie Muggli** (Senior, Animal Science, Miles City, MT), **Mackenzie Foust** (Senior, Natural Resources and Rangeland Ecology, Charlo, MT), **Jenny Roddewig** (Senior, Animal Science, Livingston, MT) and **Shannon Saint** (Senior, Animal Science, Thompson Falls, MT). The students developed an oral presentation on genetically modified organisms, took a written test as a team, and participated in 10 different practical stations, anatomy, meats, range, heifer development, pigs, poultry, practical farm equipment, beef handling, nutrition and reproduction. At each of the practical stations they were required to do some form of hands on work ranging from equipment, plants or feedstuff identification and vaccinations to hooking up a trailer and putting three yearlings into the trailer without the use of gates as well as checking cows for pregnancy status. The girls represented Montana State well by placing third overall, and second in the practical with a first place in beef handling where they had to sort three animals from a pen containing about 10 animals, followed by moving them to a chute and catching the animals as if to work them, then move them to the arena where they had to move the animals between two barrels into a round pen at the far end of the arena than load them into a trailer sitting in the middle of the arena. All of which had to happen within 20 minutes.



(L-R) Angie Muggli, Mackenzie Foust, Jenny Roddewig and Shannon Saint.



Along with the competition the organizers planned a visit to the earthen dam site outside of Rexburg that collapsed. The students also visited the Rexburg museum to learn more about how the flooding that occurred affected the local people.

The MSU Sheep Program has conducted several experiments at our facilities (Red Bluff and Fort Ellis) and with collaborators (University of Wyoming and U.S. Sheep Experiment Station) so far in 2018. **Ryan Knuth**, an M.S. student studying under **Dr. Tom Murphy**, spent a few weeks at the U.S. Sheep Experiment Station this spring where he was involved in several projects related to his thesis research. One such project is evaluating the effects of maternal zinc supplementation on ewe mastitis incidence and lamb performance. Additional research concerning the production impacts of ewe mastitis as well as evaluating the South African Meat Merino will be presented this summer at the Western Section American Society of Animal Science meeting in Bend Oregon.



Ewes and their lambs are in their group mixing pens at Red Bluff Research Ranch.



These feeding systems allow researchers to monitor individual daily feed intake.



Suffolk, South African Meat Merino, and Rambouillet sired lambs had their feedlot and carcass performance measured.

This spring the MSU Livestock Judging Team traveled to contests in Denver, CO, Kearney, NB, and Houston, TX. Team members include: Brett McRae (Colstrip, MT), Meghan Brence (Miles City, MT), Jayelyn Ruckman (Fairfield, MT), Makae Nack (Geraldine, MT), and Mason Haidle (Eureka, MT). **Hannah DelCurto** is the team advisor.

Students involved in livestock judging learn how to sharpen their decision making and communication skills, and gain knowledge about a wide variety of segments of the livestock industry in different parts of the country.



## SPRING 2018

### Graduate Students – MS in Animal and Range Sciences

Sarah Blatter  
Jarrett Payne

Torrey Ritter  
Anish Sapkota

Skyler Vold

### Undergraduate Students – B.S. in Animal Science

Hayley Barker  
Michaela Blevins  
Benjamin Blottcher  
Noah Davis  
Amy Desjardins  
Morgan Fraley  
Kylie Gardhouse  
Matthew Kerner  
Kaylee Kountz

Katie Kraus  
Katherine Madsen  
Brant Marsh  
Kyle Mitchell  
Jessica Murray  
Katelyn Nelson  
Allie Novotny  
Jennifer Roddewig  
Brent Rowan

Shannon Saint  
Samuel Shearer  
Brieanna Smelser  
Hailey Sveeggen  
Kasey Sweeney  
Edward Weidenbach  
Amanda Williams

### Undergraduate Students – B.S. in Natural Resources and Rangeland Ecology

Matthew Becker  
Trestin Benson  
Alyson Christians  
Victoria Chulyak  
Noah Davis

Ashley Dettmann  
Mackenzie Foust  
Michael Hamel  
John Huckins  
Matthew Huston

Jessica Murray  
Michael Oakes  
Brandt Ross  
Kevin Wallen  
Richard Warren

## SUMMER 2018

### Graduate Students

Brittani Johnson – MS in Animal and Range Sciences

### Undergraduate Students

Tristen Baroni – B.S. in Animal Science  
Karina Derrick – B.S. in Animal Science  
Kasee Lawson – B.S. in Animal Science  
Katie Rice – B.S. in Animal Science

**Congratulations to all the graduates!**



Noah Davis received College of Agriculture's Outstanding Senior for 2018. Dr. Charles Boyer, VP and Dean College of Agriculture presented him with the award.



Noah Davis received the Department of Animal and Range Sciences Outstanding Senior for 2018. Dr. Bok Sowell presented him with the award.



Sam Wyffels, PhD candidate, (right) received the North American Colleges and Teachers of Agriculture Graduate Student Teaching Award of Merit certificate.

Dr. Emily Meccage, Forage Extension Specialist, received the North American Colleges and Teachers of Agriculture Teaching Award of Merit certificate.

This certification recognizes the accomplishments and dedication to teaching and learning.





**Congratulations to all the graduates!**



Class of 2018

# Awards, Honors, and Grants

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**Dr. Jim Berardinelli** is the 2018 WSASAS Western Distinguished Service Award Recipient. The award will be given during the awards banquet at the 2018 Western Section Meeting in Bend, Oregon later this summer. This award recognizes those members of the Western Section of the American Society of Animal Science who have made the most outstanding contributions to animal agriculture in the western region. As such, this award is the most prestigious honor that the Western Section ASAS bestows upon its members.

To be nominated, the candidate must possess outstanding character and ability in the teaching, research, extension, administrative or industrial phases of animal and meat sciences. Additionally, candidates should have contributed long and valuable service, especially to western animal agriculture. This is a huge testament to Jim's contributions and a well deserved award. Congratulations Jim!

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The National Sheep Industry Improvement Center kicked off 2018 by awarding six grants totaling \$149,000 to deserving organizations affiliated with the American sheep industry.

The NSIIC Board of Directors received 23 requests for nearly \$2 million in funding, but chose to stick with projects that affect the sheep industry as a whole - thus providing a national impact through its grant funding. Established as part of the 2008 Farm Bill, the NSIIC includes a nine-member board comprised of seven voting members and two non-voting members. Voting members include four domestic producers of sheep or goats; two members with expertise in finance and management; and one member with expertise in lamb, wool, goat or goat product marketing. Non-voting members include the Under Secretary for Marketing and Regulatory Programs and the Under Secretary for Research, Education and Economics at the U.S. Department of Agriculture.

The board reviews each proposal, recommends funding and submits those recommendations to USDA's Agricultural Marketing Service for approval.

The six grants funded are as follows:

- The National Sheep Improvement Program: To fund an education initiative and awareness within the sheep industry. Activities of this project include conducting informational workshops and field days throughout the country, developing educational literature for purebred and commercial producers, and assisting new members in the transition into quantitative genetics.
- The Dairy Sheep Association of North America: To develop key tools for producers and industry stakeholders, as well as to create a functional and stable organizational structure for industry leadership.
- The Montana Wool Growers Association: To provide a two-year educational program for individuals interested in shearing sheep or in wool handling. This would be comparable to a trade degree at a state university.
- **Montana State University:** To evaluate the effect of zinc oxide injections during critical production periods on ewe and lamb productivity.
- Texas A&M AgriLife and **Montana State University:** To provide educational outreach programs for producers and stakeholders of American wool aimed at improving wool quality and reducing contaminants, and to encourage the use of Code of Practice standards. In addition, the program will: apply light microscopy and Raman spectroscopy to detect and identify contaminants; evaluate the FibreLux Micron Meter for on farm wool classing; and investigate value-based pricing of wool.
- University of Wyoming: To quantify the economic impact of excessively fat lambs in the United States lamb processing sector. The project is a phase one pilot study to quantify the economic losses due to overfat lamb at two of the major packing plants.

# Awards, Honors, and Grants

Forty of Montana State University's top seniors and their faculty and staff mentors were recognized at the 36th annual Awards for Excellence event held on the MSU campus. Honored students are nominated by faculty in their college or department. Qualified seniors must have at least a 3.5 grade point average on a 4.0 scale, as well as demonstrated campus leadership and community service. The honored students each selected a mentor to be recognized with them at the event, which was hosted by the MSU Alumni Foundation.

The 2018 Excellence Award winners for the College of Agriculture were:

**Noah Davis**, animal science, and natural resources and rangeland ecology, Ventura, California; **Dr. Bok Sowell**.  
*"Bok has helped mentor and guide me throughout my time at MSU. He genuinely cares about my success and my future and is always willing to help."*

Amber Roberts, agricultural business, agricultural education, Great Falls; Anton Bekkerman

Tavin Schneider, plant science, Hogeland; Michael Giroux



Dr. Bok Sowell and Noah Davis

Congratulations to **Drs. Craig Carr, Jennifer Thomson** and **Carl Yeoman** on the positive recommendation of MSU President Dr. Waded Cruzado and Provost Dr. Robert Mokwa and to be tenured and promoted to the title of Associate Professor!



Dr. Craig Carr  
Rangeland Ecology



Dr. Jennifer Thomson  
Livestock Genomics



Dr. Carl Yeoman  
Molecular Biology



Several members of Montana State University's Intercollegiate Horse Show Association Equestrian Team made it to post-season competition. The Intercollegiate Horse Show Association (IHSA) team travels and competes throughout Montana, Idaho, and Utah in four disciplines: Hunt Seat Equitation, Equitation Over Fences, Western Horsemanship, and Reining. **Dr. Emily Meccage** is the team advisor.

McKenna Anders

Qualified for Regionals and Semifinals  
Placed 2nd in Class 12 at Regionals

Kayla Ballweg

Qualified for Regionals in Class 12

Nicole Bodnar

Qualified for Regionals  
Placed 5th in Intermediate Flat Class  
Placed 3rd in Novice Fences

Emily Csenar

Qualified for Regionals and Zones for English  
Placed 1st at Regionals in Class 2  
Placed 5th at Zones in Class 2

Elizabeth Jones

Qualified for Regionals, Semifinals and Nationals  
Placed 1st in Class 16 at Regionals  
Placed 1st in Class 16 at Semifinals  
Received Participation Award at Nationals

Kelli Nicholson

Qualified for Regionals in Class 12  
Placed 4th in Class 12

Leah Wimmer

Qualified to Regionals  
Placed 2nd in Class 14  
Qualified to Semifinals



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## **Grants:**

**Dr. Carl J. Yeoman** is part of a group led by Fabian Menalled (LRES) that were awarded \$499,948 by USDA-NIFA to continue work looking at Diversifying cropping systems through cover crops and targeted grazing and the impacts of management systems on plant-microbe-insect interactions, yield and economic returns

## Publications:

**Dr. Jennifer Thomson** has a new publication in the journal *Frontiers in Genetics*, titled “Genetic Markers Are Associated with the Ruminal Microbiome and Metabolome in Grain and Sugar Challenged Dairy Heifer.” This article can be found at: <https://www.frontiersin.org/articles/10.3389/fgene.2018.00062/full>

**Dr. Lance McNew** was quoted in *Explore the Big Sky* “Winter Survival: A Lesson in Darwinism.” This article can be found at: <http://www.explorebigsky.com/winter-survival-a-lesson-in-darwinism/24394>

**Betiku OC, Yeoman CJ, Gaylord TG, Americus B, Olivo S, Duff GC, Sealey W.** 2018. Water system is a controlling variable modulating bacterial diversity of gastrointestinal tract and performance in Rainbow trout. *PLoS One*. 13: e0195967. DOI: [doi.org/10.1371/journal.pone.0195967](https://doi.org/10.1371/journal.pone.0195967)

**Yeoman CJ, Ishaq SL, Bichi E, Olivo SK, Lowe JL, Aldridge BM.** 2018. Biogeographical differences in the influence of maternal microbial sources on the early successional development of the bovine neonatal gastrointestinal tract. *Scientific Reports*. 8: 3197. DOI: [10.1038/s41598-018-21440-8](https://doi.org/10.1038/s41598-018-21440-8)

**Dr. Jeff Mosley, Dr. Lance McNew,** and their coauthors reported the results of a recently completed research study. The article in the *Montana Wool Grower Magazine* was entitled, “*How Far Do Guard Dogs Roam From Their Sheep?*”.

Golder Helen M., **Thomson Jennifer M.**, Denman Stuart E., McSweeney Chris S., Lean Ian J. Genetic Markers Are Associated with the Ruminal Microbiome and Metabolome in Grain and Sugar Challenged Dairy Heifers. 2018. *Frontiers in Genetics* Vol 9. DOI=[10.3389/fgene.2018.00062](https://doi.org/10.3389/fgene.2018.00062)

**Flesch, Elizabeth P., Jay J. Rotella, Jennifer M. Thomson, Tabitha A. Graves, Robert A. Garrott.** Evaluating sample size to estimate genetic management metrics in the genomics era. 2018. *Molecular Ecology Resources* -Accepted for publication on April 26.

## Presentations:

**Dr. Carl Yeoman** was an invited speaker at the Midwestern Section of the American Society for Animal Sciences in Omaha, NE March 11 -13 and presented a talk entitled “Unraveling the Microbiomes Role in the Expression of Complex Host Phenotypes Requires a Biogeographical Understanding”

**Dr. Carl Yeoman** was an invited speaker at the Animal Microbiome Congress in Kansas City, KS March 21 – 22 and presented a talk entitled “Biogeographical Interrogation of the Rumen Microbiome Links Animal Health to Feed Efficiency”.

I started my career at Smithfield Premium Genetics (SPG) Hog Production Farm last June as a Manager in Training. I'm also part of a Hazard Injury Risk Assessment Team. SPG consists of five farms, four in North Carolina and one in Texas. We provide all the genetics for Smithfield and the main product we produce and focus the most on is our boars. The boars we produce are sold to other farms outside of Smithfield as well.

The farm I work on is farrow to finish with over 800 sows, meaning care for all the pigs from birth until market weight. There are three departments – Farrowing, Breeding and Finishing – with 8 employees, including our manager, all working on the farm. I started working in the finishing department and got certified three months later. The finishing department consists of all the pigs from weaning age until market weight. I then went to the farrowing department where I cared for all sows before, during, and after farrowing, as well as the piglets until weaning age (21-30 days old). I was certified last month and am currently in the breeding department. I care for all the females in that department including gestating sows before farrowing. There are also heat checking boars in the barn that are used every day.



Olivia Fernandez

As a genetics farm, we collect DNA and data consistently. From male piglets when they are born, replacement gilts that are chosen to become breeding gilts, and all pigs at the farm (through ultrasound looking at back fat and loin depth and taking weights at various ages).

Looking back at my four years at Montana State University, I took many classes that have helped me in my career. One in particular was Meat Science with **Jane Ann Boles**. From understanding what happens when an animal is stressed from poor handling, as well as knowing other factors that affect the meat quality, has helped our farm tremendously in making sure we are handling the pigs in a manner where stress hardly occurs now. I've explained to not only my farm, but the three other farms here in North Carolina, the importance of stress-free handling. We now have a new approach when weighing pigs and loading them on the market truck that is stress free.

Because of my involvement with the sheep at MSU, my resume stood out to Jimmy Mauney, Director of Genetics for SPG. He saw how much experience I had with sheep and knew I would fit right in, in terms of animal handling. He grew up raising sheep and knew how similar these two species were. My three years working at Red Bluff Research Ranch during lambing season stood out to him as well. Working under **Arianne Perlinski** gave me that experience. Having assisted many ewes while working at Red Bluff really helped me when I got to the farrowing department. I assisted sows more than I thought I needed too. Learning the importance of multitasking at Red Bluff also helped in the farrowing barn. Some days I would have up to 8 sows farrowing at the same time as well as a list of chores that needed to get done around the farm and having the experience of being able to multi-task was so helpful.

Working with **Devon Ragen**, Wool Lab Manager, has helped me really appreciate and understand the importance of data collection. On our farm we have every animal's information from when they were born, who their parents are, even down to when they got vaccinations and who gave the vaccination(s). Working with Devon at Fort Ellis with her grazing project was not only fun, but very helpful in terms of more sheep handling and learning how to collect data and find out what we needed from the data we collected.

I am very thankful for my education from MSU as well as the great people I met along the way that have helped me through college and even after. GO CATS GO!

# Hello

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Welcome to **Madison Hill** who will be our student worker in the front office this summer.

Although not physically present in ABB every day, **Lisa White** will be back to help us with departmental accounting duties while the search committee begins the process of hiring a new Accounting Associate IV.

# Goodbye

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**Reata Brannaman** is leaving MSU to pursue other opportunities. Reata has instructed the Colt Starting Class since 2013. The class had its most successful sale in 2018. We know you'll continue to shine, Reata!

We want to thank **Amy Perry** for serving as the Interim Pavilion Manager. We wish her continued success with her business, Cedar Ridge Equine.

**Jayelyn Ruckman**, our office student worker, has ended her work in our department. Thank you Jayelyn for all your help and good luck to you in the future!

**Becky Van Zee**, Accounting Associate IV, has taken a job with Wheat Montana. We wish her the best!

Visit our website at [animalrange.montana.edu](http://animalrange.montana.edu)

Find us on Facebook at [facebook.com/MSU.Animal.Range.Sciences](https://facebook.com/MSU.Animal.Range.Sciences)

Email newsletter comments to [sharon.henderson@montana.edu](mailto:sharon.henderson@montana.edu)

Welcome to the world! Lab Manager, Ben Wheaton, and his wife are the proud parents of a new baby girl. Lily Mae Wheaton was born on Friday, February 9, 2018.



The mission of the Animal and Range Sciences Department is to create, evaluate and communicate science-based knowledge to enhance the management of Montana's livestock and rangeland resources in ways that are economically, socially and ecologically sustainable.

