

# ANIMAL & RANGE SCIENCES NEWSLETTER

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## Introduction from Dr. Glenn Duff, Department Head



With this latest newsletter, enrollment in Animal and Range Sciences has increased yet again this year. This fall, we have 300 undergraduate students plus 18 graduate students in Animal and Range Sciences. All faculty and staff are committed to ensuring success of our undergraduate and graduate students.

I continue to be impressed with the quality of the education students get in Animal and Range Sciences at Montana State University. Since our last newsletter, Donna and I have had a chance to go to a ranch and observe students in Dr. Clayton Marlow and Mike Frisina's 490, undergrad research class. Students were able to apply the knowledge from the classroom in a real world situation. Our program continues to be hands on in both animal science and range science. This aspect of the program makes our undergraduate degrees unique. With many universities downsizing their teaching and laboratory practicums, our students will acquire the skills to make them prepared academically and practically for jobs in the industry or back at the ranch.

A few other programs that are important to the Department of Animal and Range Sciences deserve recognition. During Ag Appreciation Weekend, we started receiving calves for the Steer-A-Year (SAY) program. Participants in this program have several options including a cash donation to the foundation, a live steer can be donated towards the athletic department or towards the livestock judging team in our department. There have been several improvements at the BART farm that will make a difference in this program including the SAY pen. I personally will oversee the feeding of the SAY calves. My PhD and previous experience is feedlot nutrition and I look forward to getting back to my roots. Several of the colts that are used by the colt breaking course have been secured from the Equine Boosters and there have been others donated directly to our program. This course culminates with the Top of the West Sale which is scheduled for May 7, 2012 at the Copper Spring Ranch. Please mark your calendar and plan on attending this important event. I also attended the annual Ram Test Auction in Miles City in September. Thank you for attending this important event and a special thanks to those who bought MSU rams.

We are currently interviewing for our three faculty positions. As a reminder, we are recruiting for a Range Ecologist, a person in the Ruminant/Gastrointestinal Microbiologist specialty, and a Geneticist position. We envision all three faculty to focus on our objective to improve grazing livestock management.

Please enjoy this newsletter. As always, we value input from our clientele. Please feel free to stop by and visit if you are in Bozeman.

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## Awards, Publications & Presentations

**Drs. Rodney Kott and Lisa Surber** were asked to speak and assist in conducting an Ultrasound Training School held at the Hettinger Research Center in North Dakota on August 21-24.

**Dr. Reid Redden**, a graduate of MSU, also assisted in the training.

The Miles City Ram Sale was held on September 15. The day prior to the sale, **Drs. Rodney Kott and Lisa Surber** organized and presented an Educational Program with guest speakers Sam Gill from Australia; Ron Cole, ASI in Denver; and Jerry and Mary Sorenson from Iowa. Speakers covered topics relating to NSIP and genetic record keeping. **Rodney Kott** has been underscoring the advantages in keeping records of the genetic traits of sheep for several years. The sale catalog put together by Rodney and Lisa increased the availability of these records and went a long way towards making the Miles City Ram Sale the top in the nation this year. The rams sold for an average of \$1465, with MSU's rams selling above average, ranking as 4th consignor in the sale. The sale was attend-

ed by additional members of our department, including **Glenn Duff, Hayes Goosey, Pat Hatfield, Jim Moore, and Brent Roeder**.

In September, **Jeff Mosley** presented the State of Montana Land Board with an analysis of proposed increases in livestock grazing lease rates on Montana's school trust lands.

At the October 27 Animal & Range Sciences Advisory Committee Meeting three presentations were given to update the Advisory Committee on the Animal & Range Sciences Department. **Dr. John Paterson** gave a presentation on the research currently being conducted by faculty in the department. **Dr. Rachel Endecott** gave an update of Extension faculty. **Drs. Pat Hatfield and Bok Sowell** wrapped up the session with a faculty update in teaching. The Advisory Committee was very pleased with what the Animal & Range Sciences Department has been busy doing.

## Where Has Glenn Been??

Listed below are some of the places Glenn Duff, Department Head, has visited since the last newsletter:

July 2011:

Joint Annual Meeting (JAM) between the American Dairy Science Association® (ADSA®) and the American Society of Animal Science (ASAS) (New Orleans, LA)

August 2011:

Central Ag Research Center Field Tour (Moccasin, MT)  
Burnham's Prickly Pear Ranch (Helena, MT)

July 2011:

Clayton Marlow & Mike Frisina's 490 Ranch Class (Roy, MT)  
Texas 4H Group Camp Out at Red Bluff (Norris, MT)

September 2011:

Focus Group Meeting at Ft. Keogh (Miles City, MT)  
Bair Ranch (Martinsdale, MT)  
Ram Sale (Miles City, MT)

October 2011:

Higher Education Summit (Missoula, MT)



*Glenn working at the Bair Ranch*



*490 Ranch Class at a ranch in Roy, MT*



*Rodney Kott and Glenn cooking up breakfast for 4H students at Red Bluff*

## Undergraduate Highlight(s): AnnaMarie Samson and Scott Anderson

Hello! My name is Anna Samson and I am a senior in the Animal & Range Sciences Department studying Animal Science.

I enrolled at MSU with a strong interest in agriculture that had developed while growing up on our family hog farm near Three Forks. My parents, five siblings and I operated a 300 sow farrow-to-finish confinement operation, marketing 5,500 pigs annually. It has been my experience that many people are surprised to learn that there is pork being produced in Montana. We were somewhat of a rarity in a state known for its cattle and crop production but we are proud of our lifestyle and are grateful for the doors it has opened to all of us throughout the years.

Growing up I was actively involved in the county 4-H program and have since continued volunteering with the Gallatin County 4-H office as well as with the National Pork Board and the Montana Pork Producers Council through their Pork Quality Assurance, Transportation Quality Assurance and Operation Main Street programs. I have also volunteered with Agriculture in Montana Schools and at the Gallatin Valley Farm Fair. At the collegiate level, I serve as the Secretary for Young Farmers and Ranchers.

Outside of school I enjoy traveling to see family and friends in the Midwest and on the East Coast, hunting, ice fishing and camping.

This past summer I had the unique opportunity to intern with the National Pork Board in Des Moines, Iowa. My interest in the pork industry and desire to stay involved in the future was strengthened during this experience as I was able to work alongside swine veterinarians in both research and education. As my understanding about the industry grew daily, I developed a strong appreciation for the work being done by the veterinarians in the field. While I've always known that my contribution to the industry would not be in production, this internship provided me with encouragement, exposure to a variety of career opportunities within the veterinary profession, and many helpful contacts that eventually lead to my decision to pursue veterinary school. I am excited to have since completed applications to veterinary school for the coming fall.

If accepted this spring, I will enroll with a goal to practice large animal medicine. If not, my plans are to enroll in another semester of classes and then reapply next fall.



I grew up on a ranch/farm just outside of Alexander, North Dakota. I decided to move to Bozeman in 2004 and attend Montana State University because of their strong recruiting efforts and well known college departments. I enrolled in a number of different majors while trying to determine what I enjoyed the most. It was not until I became a part of the College of Agriculture



and started a degree in Natural Resources and Rangeland Ecology that I became completely satisfied. The College of Ag stood out because of its highly interactive faculty, support for students, and the backing of an interested and supportive agricultural community.

While in the College of Ag, I have been a part of MSU's Range Club, Plant Identification Team, and became a member of the Society of Range Management. Being involved in just a few of the numerous clubs/organizations has helped me develop close relationships with classmates and people involved in Montana's agriculture.

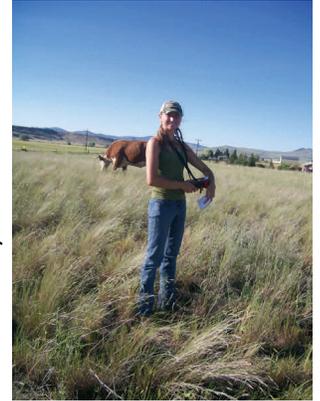
At the end of the 2011 Fall Semester, I will receive my bachelor degree in Natural Resources and Rangeland Ecology with a Wildlife Option and move to Forsyth, MT to begin a career as a Range and Wildlife Conservationist. Thanks to the College of Ag, my time at MSU has been well spent, full of valuable experiences, and helped me appreciate agriculture even more.

## Research Highlight: Targeted Cattle Grazing Project at Grant Kohrs National Historic Site

First year Master's student, Katie Tierney from California Polytechnic State University is currently working on a targeted cattle grazing project. Katie's advisor is Dr. Bret Olson, Range Ecology Professor in the Animal & Range Sciences Department. The research is being conducted on the Grant Kohrs National historic site in conjunction with ranch manager Jason Smith.



In 2004 there were 19 yearling heifers on the Grant Kohrs ranch that were trained to eat spotted knapweed, Canada thistle, and leafy spurge. The current research is comparing the weed consumption between the initial trained group of yearlings to an untrained group of 2005 yearlings. This year's calf crop from the trained cows is being compared to the calves from the untrained cows to determine if the calves are being imprinted by their mothers. A second trial is also being conducted on a group of yearlings from the trained cows and a group of purchased yearlings. The goal of the project is to determine if the trained cows retained their training, and if it is passed on to their offspring.



Masters student, Katie Tierney

## Upcoming Dates

November 11, 2011	Veteran's Day Holiday (no classes, offices closed)
November 24-25, 2011	Thanksgiving Day Holiday (no classes, offices closed)
December 2-3, 2011	Montana Woolgrowers Association Convention (Billings, MT)
December 14-17, 2011	2011 Blacksmithing Short Course <a href="http://animalrange.montana.edu/horseshoe.htm">http://animalrange.montana.edu/horseshoe.htm</a>
December 16, 2011	MSU 2011 Fall Semester Ends
January 11, 2012	MSU 2012 Spring Semester Begins
January 16, 2012	Martin Luther King Holiday (no classes, offices closed)
March 12-16, 2012	MSU Spring Break
March 19, 2012	MSU Spring 2012 Farrier School <a href="http://animalrange.montana.edu/horseshoe.htm">http://animalrange.montana.edu/horseshoe.htm</a>

## Recent Events Held at the Animal Bioscience Building

September 9, 2011 **1957 International Farm Youth Exchange Reunion 2011.** Dr. Charles Rust, Agricultural Economist & Dean of Extension Emeritus hosted a reunion of 1957 International Farm Youth Exchange (IFYE). Members came from Iowa, Pennsylvania, Colorado, South Dakota, California, Nebraska, Indiana, Washington and Montana. It was a pleasure to meet this group and have them use our facilities.

September & October, 2011 **Pasture Management Extension Program for Gallatin County Landowners.** Michelle Passmore, Small Acreage & Horticulture Agent for Gallatin County Extension, has used our building in the evening to run an Extension program on Pasture Management. This is helping bring a tie back to MSU research and Extension.



## The Montana Agro-Emergency Preparedness Committee Presents: Locally Responding to Foot and Mouth Disease - Tabletop Scenario and Exercise



*Table-top interactive scale model of a rural American community used for this training.*

This educational program of the Montana Agro-Emergency Preparedness Committee and MSU Extension will be held on Wednesday, November 9, 2011 at Montana State University in Bozeman. The program is offered at no charge to participants. It was funded by a U.S. Department of Homeland Security grant, administered by Montana Disaster and Emergency Services.

Livestock producers, advisors, county agents and veterinarians represent the frontline for foreign animal disease detection in animal production systems. The early identification and reporting of potential foreign animal diseases to state animal health authorities provides one of the best opportunities for early disease detection and is critical to limiting the scope of an outbreak. Increasing foreign animal disease awareness and preparedness has been an industry priority and has resulted in the development and delivery of this table top exercise training tool for livestock producers, veterinarians and stakeholders at the state and local level.

This literal table-top exercise is an interactive training tool that utilizes a scale model of a rural American community including farms, ranches, livestock facilities and a small town to help participants visualize what would occur locally during an animal disease disaster. The exercise walks the audience through a foot and mouth disease outbreak focusing on the effects at the local level and the operations that must occur to contain, manage and eradicate the disease. Participants rapidly become a part of the response effort from diagnosing the first case, mobilizing the local response, controlling and eradicating the disease, and getting back to "business as usual." This interactive training has been well received by producers, veterinarians and state / local first responders.

This event is promoted by the MT Agro-Emergency Preparedness Committee and Montana State University Extension. Through grant funding and agency cooperation the promoters are proud to provide this event at no cost to participants. Continuing Education credits have been requested for veterinarians, veterinary technicians and professional animal scientists. Please take a moment to check your calendar and RSVP for this important event. Contact Thomas Bass ([tmbass@montana.edu](mailto:tmbass@montana.edu) 406.994.5733) for reservations or Dr. Jeanne Rankin ([jeanne.rankin@montana.edu](mailto:jeanne.rankin@montana.edu) 406.465.5142) for more information.

"I attended the agro-emergency response tabletop presentation at the Montana Pork Producers convention last January. This interactive display shows the potential impact of a foreign animal disease and how it can be rapidly spread. I highly recommend attending this important workshop and you will come away with a better understanding of potential control measures should one of these events occurs". Glenn Duff, Department Head, Animal and Range Sciences.

## Integrated Research and Education

This Fall, Patrick Hatfield and team were awarded a 3-year grant from USDA NIFA for \$750,000 titled “Reducing tillage intensity in organic crop systems: ecological and economic impacts of targeted sheep grazing on cover crops and weed management, soil health, carbon sequestration, and greenhouse gas emissions”. The proposal was the number one ranked submission for U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) Organic Transition Program this year. Team members of this interdisciplinary project are Fabian Menalled, Weed Ecologist, MSU LRES; Upendra Sainju, Soil Scientist, USDA, ARS; Perry Miller, Agroecologist, MSU LRES; Zach, Miller, Ecologist, MSU PSPP; Anton Bekkerman, Agricultural Economist, MSU Ag Econ; Paul Lachapelle, Community Development Specialist, MSU Pol. Sci; Andrew Lenssen, Agroecologist, USDA, ARS; Irene Grimberg, Educational Evaluator, MSU Physics; and Stephanie Ewing, Soil Chemist, MSU LRES.

Our long term goal is the profitable and environmental sustainable integration of sheep into farming systems. In this project we will focus on incorporating sheep into a 5 crop rotation with comparisons among 1) an organic system using tillage, 2) an organic system using grazing sheep and minimum tillage, and 3) a no-till system using herbicides for weed and cover crop management. Our goal is to use targeted sheep grazing to reduce tillage intensity, N leaching, greenhouse gas emission and improve soil fertility and soil carbon sequestration while taking advantage of weeds, cover crops and crop residues for fiber and meat production. We will address a major concern in organic farming systems: reducing tillage intensity and its potential impact on soil stability and health. To enhance the adoption of targeted sheep grazing we will also assess the social and economic challenges facing organic crop producers.

In addition to the research aspect of this proposal, we will integrate knowledge generated by the proposed research into our undergraduate teaching program to help students learn about sustainable and organic practices. As part of MSU's core soils curriculum, Stephanie Ewing will develop a soil conservation and carbon sequestration course based in part on this research effort. This class will focus on student learning connections between soil carbon inventories, agricultural practices, and sustainable strategies for carbon sequestration and soil conservation in the region. The research will provide a case study in use of grazing management, low till, and crop rotation to meet the goals of organic agriculture. Students will review project data and enhance learning outcomes with field and laboratory activities aimed at evaluating the long-term carbon balance of these soils.

During the organic cropping systems module of the Sustainable Cropping Systems course taught by Perry Miller, the Fort Ellis site will serve as the destination for field trips during spring semester. Anton Bekkerman will also use results from this project to introduce students to the economics of agricultural markets. Students will develop an understanding of integrating organic grain and sheep production, and how this integration contributes to mutual economic benefits in the farming and livestock markets.

In conjunction with the Sustainable Food and Bioenergy Systems: Interdisciplinary B.S. Degree Program and the new sustainable livestock production option, Patrick Hatfield is developing and teaching a new class: ARNR 222 Livestock in Sustainable Production Systems. This course will consider all aspects of incorporating livestock (sheep, goats, beef and dairy cattle, poultry, and swine) into sustainable production systems. In addition to Hatfield, this class will draw on the expertise of Glenn Duff (beef and dairy), and Charles Holts (Poultry). The course is divided into a series of modules. The course goals are: a) Students develop a better understanding of the concept of sustainability as it applies to livestock and livestock integrated into other agricultural systems. b) Expand student appreciation for beneficial traditional and non-traditional partnerships that promote sustainability. c) Further develop critical thinking and evaluation skills.



*Before and after photographs (courtesy of Perry Miller) of sheep used to terminate a cover crop used in an organic crop rotation system at Post Farm (off Huffine Road in Bozeman).*



## Other News



**Tommy Bass**, MSU Extension Livestock Environment Associate Specialist, was recently nominated to chair the Program Planning Committee for the Annual International Conference of the Soil and Water Conservation Society (SWCS). Tommy is currently the president of the Montana Chapter of SWCS, and has been the “conservation education and outreach” topic leader for the SWCS International Meeting since 2009. His tenure as program chair for the Society’s Annual International Meeting will last from 2013 to 2015. SWCS is a nonprofit scientific and educational organization, founded in 1943, that serves as an advocate for conservation professionals and for science-based conservation practice, programs, and policy. SWCS has over 5,000 members around the world.



**Dr. Lisa Surber**, MSU Wool Lab Supervisor and Research Scientist, was one of seven sheep shearers and wool handlers invited to participate in the ASI Mill Tour of Chargeurs Wool (USA) Inc. and Burlington Industries wool processing facilities in the Carolinas early in August. Montana was also represented by Cheryl Schuldt from Chinook, Montana. More information can be found at: [http://sheepindustrynews.org/?page=site/text&nav\\_id=eea5d4ff921a93de0e4a3523518dce2a&](http://sheepindustrynews.org/?page=site/text&nav_id=eea5d4ff921a93de0e4a3523518dce2a&).



**Drs. Rodney Kott and Lisa Surber** were invited to participate in the Trailing of the Sheep Festival held in Hailey, Idaho on October 7 through 9. This is a large sheep-related festival that is designed around the historical trailing of the sheep bands through town as they came out of the mountains. Rodney Kott did the visual judging of the wool show and provided producer education on wool and wool grading. The OFDA 2000 equipment, which objectively evaluates wool, was demonstrated by Lisa Surber.

*“Home, home on the range, where the deer and the antelope play.”*



The words and melody of this historic song were sung by all during the Rangeland session of the Ag Education Program at the Northern International Livestock Exposition (NILE) in Billings. For the past 20 + years, 4<sup>th</sup> graders from Billings area elementary schools converge on the grounds of the NILE to get, perhaps, their first introduction to agriculture in Montana. **Jeff Mosley**, with the help of **Rachel Frost** and **Brent Roeder**, spent 3 days in October providing mostly urban students with a snapshot of what rangelands provide for all Montanans, regardless of where they live or how they make their living. This year 1,728 students participated and learned about rangelands and their contributions to wildlife, the livestock industry and economy of Montana, clean air, clear water, and wide-open spaces for all to enjoy. The students also learned about some of the challenges facing rangelands and the need for future rangeland managers.



**Hayes Goosey** along with Duane Griffith developed a new program from current research for sheep and alfalfa producers as an economics decision and support tool. Sheep grazing can be both a crop effective and cost effective method of managing alfalfa weevil populations. Our research developed a grazing model which utilizes accumulated temperature expresses as ‘Degree-Days’ to implement sheep grazing in the spring. The program was developed as a supporting tool to the grazing model and allows the user to estimate treatment scenarios for alfalfa weevil management by comparing input costs of either insecticides or grazing sheep. The scenarios include: 1) treating an existing weevil problem that has previously never been treated, 2) treating a new weevil problem, or 3) treating an existing weevil problem that has been previously treated. Click the following link: <http://www.montana.edu/softwaredownloads/livestockdownloads.html>, scroll to the bottom of the page and click ‘Sheep Grazing Alfalfa’ to start the program. This program development was paid for by a grant from Western Sustainable Agriculture Research & Education (SARE).

## Range Scientists Highlight Current Research on Spotted Knapweed and Sulfur Cinquefoil in Lake County



Left to right: Virgil Dupuis – Extension Director, Salish Kootenai College, Pablo, MT; Doug Dupuis, Range Specialist, Confederated Salish Kootenai Tribes; Mac Binger – Landowner, Lake County, MT; Brent Roeder – Research Assoc., Dept. of Animal & Range Sciences, MSU-Bozeman; Jeff Mosley – Extension Range Management Specialist, Dept. of Animal & Range Sciences, MSU-Bozeman

Local landowners and ranchers, land managers from the US Forest Service and US Fish and Wildlife Service, MSU Extension personnel, and representatives of the Confederated Salish and Kootenai Tribes converged on a steep hillside in Lake County in August to discuss ongoing weed research projects conducted by faculty and staff of the MSU Animal and Range Sciences Department. Jeff Mosley, Rachel Frost and Brent Roeder hosted the field day highlighting their latest research aimed at controlling spotted knapweed and sulfur cinquefoil on rangelands. Local landowners Greg Gardner (MSU range science alumnus) and Mac Binger shared their personal experiences and frustrations from years of battling the two noxious weeds on their own lands. All the attendees were encouraged to hear that research was being continued with both weeds and that alternative control methods were being explored.

After coffee, donuts, and an exchange of introductions, the conversation turned to sulfur cinquefoil. Jeff Mosley discussed the merit and limitations of herbicides and biological control for the noxious weed. Then Rachel Frost elaborated on the 2-year research project exploring targeted grazing by sheep or mowing to stop seed production of the plant. Large plots of sulfur cinquefoil were grazed by sheep or mowed to determine which method was the most successful in lowering seed production. Since the invasive plant reproduces only by seed, the researchers hoped that grazing or mowing could prevent seed production and stop the population growth of the weed. Turns out that both sheep grazing and mowing are effective in reducing seed production, up to 99% in drier years. Sheep appeared to like the plant and readily grazed it with no apparent harmful side effects. While the existing population was not reduced by grazing or mowing, the methods offer a way to decrease the seedbank of areas heavily infested with sulfur cinquefoil that could reduce the population over time or increase the lifespan of traditional control measures including herbicides.

After that, the conversation turned to the bugs...insect biological control agents, that is. Brent Roeder discussed the principles behind targeted sheep grazing for weed control and the importance of integrating this tool with other available tools to combat noxious weeds. It was this need for integration that prompted a research project to examine the potential to combine two already accepted control techniques to combat spotted knapweed, insect biological controls with targeted sheep grazing. The insect biological control agents are widespread in the state of Montana and have had measurable impacts on the noxious weeds in some areas. Sheep are also recognized as an effective tool to control this plant and fine-tuning the grazing prescription has been a focus of Mosley and Roeder's research in recent years. While sheep and biological control agents have undoubtedly been working together on rangelands, there has been no attempt to quantify if the sheep have a negative impact on the bug populations by consuming the seedheads where most bugs lay their eggs or even consuming the bugs themselves. While the bug populations decline immediately following grazing, the decline is short lived and bug populations have been able to sustain despite grazing disturbance for 3 years. More importantly, the combination of sheep and biological control insects has reduced the viable seed added to the seedbank by 99%. The effects of this are being manifested already on the study site as grazed plots produced many fewer seedlings last spring. Although at first glance they seem to be an odd couple, him at less than 1 inch long and weighing only grams, while she is 40 inches tall and over 100 lbs, they appear to be a perfect pair for controlling spotted knapweed!



Sheep graze in a patch of sulfur cinquefoil in Lake County, MT. The project explored the potential for sheep grazing or mowing to reduce the seed production of this noxious, invasive plant.

Jim Story, retired MSU Research Scientist, rounded out the day with a crash-course in insect identification and a history of the spotted knapweed biological control program in Montana. Despite the high temperatures, people stayed for well over 4 hours

## Alumni Update

In the July 2011, Department Head, Glenn Duff asked for updates from alumni. Kathy Soder emailed with this update: As an alumnus of MSU (1993- M.S. under Verl Thomas and Rodney Kott, then worked for the Wool Lab for 2 years under Rodney) I have been an Animal Scientist with USDA-ARS since 1998, and also have my own sheep flock ([www.kbarkfarm.com](http://www.kbarkfarm.com)). Thank you Kathy!

Kelsey Gibbs 2010 graduate of Animal & Range Sciences is competing at the upcoming World Young Shepherds Challenge - set for Nov. 1-2 in Oamaru, New Zealand. Read more about Kelsey at: <http://www.montana.edu/cpa/news/nwview.php?article=10445&origin=homepage-1>.

## Goodbye and Good Luck Dennis Cash



*Dennis' with his new retirement attire!*

A message to all from Dennis Cash, Professor, Range Science and MSU Extension Forage Specialist:

The rumor is true – you can retire in middle age. My MSU retirement is sending me off to a new career rather than to the golf course or a rocking chair.

October 31 - Halloween will be my final day at MSU, and I'll move on to another chapter in life. I have accepted a position for international forage development - primarily involved with hay export from the western U.S. and alfalfa agronomics, hay quality testing and client service in China. Two major draws – I will be based in Bozeman, and Katie plans to join me for much of the travel. With our children out of the home, we are anticipating many new adventures.

To all of my MSU peers, colleagues, students and Montana clients - it has been a great and rewarding privilege to work with all of you for 20 years. Extension and university “work” would be very dreary if it weren't for all the personal relationships we cultivate. Please keep in touch with me at my new email address below: [dcash.montana.edu@gmail.com](mailto:dcash.montana.edu@gmail.com). Best regards to all, Dennis.

## Help Support Animal and Range Sciences

A gift to the Department is a great way to support student and faculty endeavors. Donations can be earmarked for student scholarship funds, faculty research, the new Animal Bioscience Building, and more.

For more information about making a donation to the Department contact:

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*Newsletter edited and compiled by Susan Cooper*

*With special thanks to the entire A&RS Administrative Team*



*The new Animal Bioscience Building*

