

ANIMAL & RANGE SCIENCES NEWSLETTER

Volume 2, Issue 1 February 2009

Introduction from Bret Olson, Interim Department Head



Welcome to the Department of Animal and Range Sciences, via our second ever newsletter. "Published" quarterly, we hope that you will find the enclosed activities and accomplishments interesting and informative.

This is the time of the semester when students have readjusted following winter break, and it is not too warm (although it is in the 50s today) whereby those with senior-"itis" would have a hard time concentrating. As with most of Montana, we had plenty of snow in December, but little since. It would be nice to receive considerably more snow to ensure our snowpack will keep Montana's rivers and streams flowing well through summer, the lifeblood of the state.

We have had two retirements in the last few years (Dr. Ray Ansotegui and Dr. Carl Wambolt). Dr. Janice Rumph, our geneticist/breeder, left mid-year 2008 to take a position closer to home in Michigan. Later this month, we will interview three candidates for a Beef Cattle Physiologist position, formerly Ray's slot. Thus, we have two more openings in range habitat ecology and genetics/genomics/breeding, in which I hope we will be able to hire high quality individuals soon.

In August, work began on Montana State University's new \$15.7 million Animal Bioscience teaching facility, a 40,000 square-foot building that will offer students state-of-the-art classrooms for instruction and research. The building is scheduled to be completed in 2010. The facility will house the entire faculty and staff of the Department of Animal & Range Sciences, one of the few departments on campus which will be housed in its own building.

Of the building's costs, \$12.5 million of it has come from private donations, primarily from Montana's agriculture industry. However, \$2.7 million is still needed to complete the third floor of the building where research laboratories will be located. When we published the October newsletter, the building was not much more than a "hole-in-the-ground". Steel girders and supports are now going up; the building is taking shape. Two faculty members, Dr. Jan Bowman and Dr. Dennis Cash, and I were members on the building planning committee, and spent hours going over the plans to every last detail. It's exciting to see those plans begin to come to fruition. You can view the progress of construction (via a webcam) using the link at <http://ag.montana.edu/info/abscamera.htm>.

Faculty and staff are busy preparing for our two main spring conferences, the MSU Equine Conference and its associated "Top of the West Ranch Horse Sale" (April 17-18), and the Montana Livestock Forum and Nutrition Conference (April 21-22). The former is highlighted on Page 5 of this newsletter. Details about the latter will soon be available at <http://www.mtbeefnetwork.org/meetings.html>. I appreciate the enormous effort that faculty and staff spend organizing these well attended conferences. Try to attend if you can.

Recently, Dr. Paul Grieco and his wife created an endowment with the MSU Foundation to support a Beef Cattle Lecture Series for our Department. The endowment is designed to bring in a prominent individuals with a strong tie to beef cattle, either in industry, academia, or other, and have them interact with faculty, graduate students, and undergraduates. The first speaker in the series, Dr. Ted Shroeder from Kansas State University, will be the keynote at the Montana Livestock Forum and Nutrition Conference. Many, many thanks to the Griecos for their generous endowment.

I hope you enjoy this newsletter.

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Faculty Highlight: Dr. Dennis Cash's trip to China

Dennis Cash recently toured the Ningxia Hui Autonomous Region in north-western China. His two-week mission during October was sponsored by the UN Food and Agricultural Organization (FAO), and was a mid-term assessment of a two-year alfalfa demonstration and extension project. The FAO project was initiated to aid low-income farmers in the mountainous region of southern Ningxia, one of China's poorest regions. In this area of the northern Loess Plateau, livestock grazing restrictions were imposed in the past decade due to severe overgrazing, erosion and desertification problems. Alfalfa is being widely planted for forage and soil conservation purposes in this region. As a perennial crop, alfalfa maintains soil structure, and improves organic matter and nitrogen contents. Alfalfa is a desired field crop to improve forage production and protein levels for livestock grown by small landholders who have been forced to feed their livestock mostly in confinement.



Alfalfa grown on hillside terraces in southern Ningxia

Dennis serves as the lead project consultant; he is teamed with several scientists and extension personnel from China Agricultural University in Beijing, and the Animal Husbandry and Grassland Management stations in Ningxia. Crop production in this area is almost exclusively rain fed – precipitation varies from 17 to 20 inches per year with a pronounced “wet season” from July to September. Southern Ningxia is at 42° latitude north, so the growing season is longer than Montana, but winter conditions are similar. Alfalfa was widely planted during 2001 and 2002 on the hillside terraces in southern Ningxia, while higher-value crops (grain, corn, potatoes) were planted in better soils in low-lying areas. In 2008 there were two striking facts about alfalfa in Ningxia – stands are simultaneously declining and hay values are comparable to the US at \$150 per metric ton.



Drs. Wu Suqin and Dennis Cash examine alfalfa root diseases

During 2008, several alfalfa research and demonstration trials were initiated in two counties in the hilly region of southern Ningxia. The main output of this FAO project is extension training in alfalfa agronomy and integrated pest management. In one county, 24 technicians received an intensive field and classroom training course in June and July. These “trainers” will conduct farmer field schools during 2009. The process will be repeated in 2009, and over 600 hundred farmers will receive the training.

Dennis rapidly made many new colleagues and friends in Ningxia and enjoyed its cultural and archaeological history. Western China is distinct from the predominant Han Chinese population in the eastern urban areas. Prior to the dynasty period, this region was independent, with both trade and hostilities along the Silk Road. The native Hui population in Ningxia is the major ethnic group. Over half of Ningxia's present population is subsistence level farmers, who manage a lifestyle on about two acres. Farms are very intensive in crop rotation, with every bit of roughage, residue and scraps saved. These are used to feed livestock (5 to 10 head of Tan sheep and goats) or small methane digesters, which are present in most households for cooking or heat. A significant current problem is a large out-migration of young adults and family men who travel to cities for better wages. So, many of Dennis' students are contemporary-aged farm women. In contrast to these small farms, there are several major new irrigation projects with the development of alfalfa under center pivots, large dairies, and forage processing plants.



Dennis examines “Shaw” alfalfa (MSU variety in southern Ningxia)

Dennis will return to Ningxia in September 2009 to complete the FAO project and hopefully do some more sightseeing. Some more photos of his six missions in Ningxia and Xinjiang are at: <http://www.animalrangeextension.montana.edu/forage/2008DC%20international%20.pdf> .

Sheep Shearing School: March 17-19, 2009



**MSU Red Bluff Research Station,
Norris, MT**

A beginner sheep shearing school will be held at the MSU Red Bluff Research Station, March 14-16, followed by a 3-day advanced shearing school March 17-19, 2009. A one-day wool handling class will also be held in conjunction with the shearing school on March 17. The school was started due to the severe shortage of sheep shearers in Montana, but it has become popular on a national level since it was featured in an article in the New York Times. Instructors are Jim Moore and Mike Schuldt, extension agents, who attended a shearing school in New Zealand to learn new techniques to pass on to those attending the classes. Dr. Rodney Kott, Sheep Specialist, who assists with the shearing school, will also be the wool handling class instructor.

Follow the link below to access an article giving more information on the school: <http://www.sheepinstitute.montana.edu/activities/shearing.html>. Fees are \$125 for each class or a fee of \$200 if you enroll in the beginner and advanced shearing school. The fee for the wool handling class is \$25. Enrollment is on a first come, first serve basis, and class size is limited, so early registration is encouraged. If you would like to read a fun article that the New York Times wrote on the sheep shearing school last year, follow this link: http://www.nytimes.com/2008/04/05/us/05sheep.html?_r=1.

For more information, contact Peggy Kelley at 994-3415 or by email at kelley@montana.edu



**Sheep shearing school at the Red Bluff
Research Station**

Administrative Team Highlight: Peggy Kelley



Peggy Kelley is an administrative associate in Animal and Range Sciences, a position she has held for 19-1/2 years. Her employment with MSU started in January of 1972. During the last 37 years, she has seen several buildings built and has met several university presidents. The primary responsibility of her position is to provide support to several Extension specialists, including the Sheep Specialist, Swine Specialist, Veterinarian Entomologist, and Pesticide Specialist. Her job includes assisting with the planning and registration for Sheep Shearing Schools, distribution of Pesticide Training materials, making travel arrangements for specialists and others, and providing information on various programs. She also is the person who receives the carcass data collected at county fairs for sheep and swine, and distributes Montana Certified Lamb and Symbol of Excellence certificates to youth whose animals have met certification requirements.

A normal day consists of contact with county agents and other extension personnel, students, staff, faculty, and producers throughout the state.

"I never know exactly what I will encounter in my day, which is part of what makes my job so interesting," Peggy says. Each phone call gives her the opportunity to help someone, which is what she thrives on. "It may be a routine sheep question that I can answer, or may be a more difficult question which requires the specialist's assistance, but every time I get to help someone, it gives me a great deal of satisfaction. That is why working as an Extension secretary is the most rewarding job I've ever had. I enjoy helping people, and I get to do that every day." Peggy has had the opportunity to become acquainted with sheep producers and ranchers throughout the state, and says, "They are not just my clientele, they are my friends."

If you are at Canyon Ferry Lake in the summer, look for Peggy riding on her red jet ski, or fishing from it. Other hobbies include writing poetry, sewing and reading.

Congratulations

The Department of Animal & Range Sciences would like to congratulate the following students who received their graduate degree in the Fall of 2008.

Ashley Beyer (Ulm, MT), MS Animal & Range Science

Advisor(s): Jeff Mosley & Tracy Brewer

Title of Thesis: "Habitat Comparisons of Historically Stable and Less Stable Bighorn Sheep Populations"

Josh Bilbao (Livingston, MT), MS Animal & Range Science

Advisor(s): Jeff Mosley & Tracy Brewer

Title of Thesis: "Predicting Feeding Site Selection of Mule Deer on Foothill and Mountain Rangelands"

Daniel Durham (Madison, CT), MS Animal & Range Science

Advisor: Clayton Marlow

Title of Thesis: "Aspen Response to Prescribed Fire in Southwest Montana"

Aimee Hafla (Cohagen, MT), MS Animal & Range Science

Advisor: Dennis Cash

Title of Thesis: "Winter Cereals as a Pasture-hay System in Montana"

Stacey Henderson (Fremont, CA), MS Animal & Range Science

Advisor(s): Jeff Mosley & Tracy Brewer

Title of Thesis: "Sequential Cattle and Sheep Grazing for Spotted Knapweed Control"

Brenda Robinson (Willow Creek, MT), MS Animal & Range Science

Advisor: Rodney Kott

Title of Thesis: "Influence of Colostrum from Safflower Supplemental Ewes on Lamb Cold Tolerance and Lamb Growth"

Shaun Tauck (Hammond, MT), PhD Animal & Range Science

Advisor: Jim Berardinelli

Title of Thesis: "The Biostimulatory Effect of Bulls on the Hypothalamic-Pituitary-Adrenal and -Ovarian Axes And on Temporal Aspects of Resumption of Ovarian Cycling Activity in Primiparous, Postpartum, Anestrous, Suckled Beef Cows"

Awards, Publications & Presentations

Jim Berardinelli received a four year USDA CSREES, NRI-CGP Grant titled "A Novel Hypothesis for Pheromonal Mediation of the Biostimulatory Effect of Bulls Involving Adrenal Cortical Activation in Postpartum, Suckled, Beef Cows."

Jim Berardinelli received a continuing grant from Montana Department of Fish, Wildlife and Parks titled "Evaluation of Nutritional Status of Greater Yellowstone Elk Herd Using Molar Concentrations of Allantoin and Creatinine Ratios in Snow-urine."

Rachel Frost and Jeff Mosley (along with Tracy Brewer of the Park County Extension Office) received a two year grant from the USDA CSREES Western Integrated Pest Management Program for \$76,286. The grant was entitled: "Integrating Biological Control & Targeted Sheep Grazing to Suppress Spotted Knapweed."

John Paterson was an invited speaker at the 2009 International Livestock Congress -USA on January 13, 2009. John's presentation was titled: "Places to Save, Places to Spend at the Ranch."

MSU Equine Conference, April 17 & 18, 2009— MSU's Miller Pavilion & the GranTree Inn (Bozeman, MT)



2008 Equine Conference crowd at the GranTree Inn in Bozeman, MT

The MSU Horse Extension Program announces that the MSU Equine Conference will be held April 17 & 18, 2009 at MSU's Miller Pavilion and the GranTree Inn, Bozeman, MT. For a full agenda please go to http://animalrange.montana.edu/courses/equine/equine_conf.htm or contact Julie Hager at 406-994-7953 or at jhager@montana.edu.

The MSU Equine Conference is pleased to announce Dr. Jim Heird as the Catlin Memorial Lecture Speaker on April 18 at the GranTree Inn and Convention Center. Dr. Heird will discuss vital issues facing the horse industry today, including such topics as disease risks, animal ID programs, demographic shifts in horse ownership, pending legislation, and the problems associated with unwanted horses. In addition, Dr. Heird will present an "I'm Whispering, But My Horse Isn't Listening" demonstration in MSU's Miller Pavilion on Friday, April 17 at 6:00 pm.

Dr. Heird is President of the Colorado Horse Development Authority, directs the Colorado Agriculture and Rural Leadership Program and is the Director of Teaching and Outreach for the Equine Center at Colorado State University. He is also an approved judge for the American Quarter Horse Association, and judges and holds clinics locally, nationally and internationally.

In addition to the educational programs and opportunities, the MSU Equine Conference also features a large trade show including Montana equine businesses and organizations, outdoor exhibits and some Montana producers in the stallion/producer row. Vendors are encouraged to contact the Equine Horse Program early to reserve booth space.

The MSU Equine Conference will include a Jess Holloway Horsemanship Clinic on Friday, April 17 at 9:00 am at MSU's Miller Pavilion. Attendees may choose to participate in the saddle or learn from the stands at Jess' clinic.

MSU Top of the West Ranch Horse Sale, April 18, 2009— MSU's Miller Pavilion (Bozeman, MT)

The Equine Boosters of MSU and the MSU Colt Breaking and Training Courses will hold the MSU Top of the West Ranch Horse Sale the evening of Saturday, April 18 at MSU's Miller Pavilion. The sale will feature 50 high quality ranch horses from across the western region which have been screened by a committee. As in recent years, the sale will also include 15 fine horses which have been donated to the Equine Boosters of MSU and trained by students in the Colt Breaking and Specialized Training courses at MSU under the supervision of instructor, clinician and well known horseman, Jess Holloway. Preview of sale horses will begin at 4:30 pm with the sale starting at 6:00 pm. An excellent meal and concessions will be available for purchase from Gallatin Valley Catering.



2008 Ranch Horse Sale at MSU's Miller Pavilion

For further information or to be placed on the mailing list, please contact Julie Hager at 406-994-7953 or email Julie at jhager@montana.edu.

Dr. Pat Hatfield's ARNR 521 Course: "Advanced Ruminant Nutrition"



Sheep feeding in bin

In the summer of 2008, Dr. John Paterson, Beef Extension Specialist, came up with the idea of doing a study to evaluate the impacts of supplementing sheep with expired human food products on the sheep's intake and digestion.

To improve product freshness, companies across America have adopted the practice of printing expiration dates on their foods. Ty McDonald, a graduate student in Dr. Pat Hatfield's Advanced Ruminant Nutrition course, found the following information: "Expired products are defined as dated packaged goods which have passed a time meant to be the end of the distribution life of those products (Raftery, 2003). In 2001, over 36% of goods on shelves were removed from the supply chain because they had expired. This equates to over \$900,000,000 in wasted foods (Raftery, 2003)".

Part of the requirement for Hatfield's Advanced Ruminant Nutrition course is a student-led nutrition study. Students set up, conduct, analyze, and write a scientific paper on the study. This year the students involved were: Reid Redden, PhD student from Texas; Aimee Hafla, MS student from Montana; Jennifer Keithly, MS student from California; Jyme Peterson, MS student from Nebraska; Justin Uhrig, MS student from Wyoming; Lindsey Voigt, MS student from North Dakota; Bryan Nichols, MS student from Oklahoma; and Ty McDonald, MS student from Montana.



Dr. Hatfield and his ARNR 521 class

Although these expired products were high in energy, the students were concerned that the high levels of oils and/or processed sugars might have an adverse effect on digestion and intake. Sixteen wether lambs were fed chopped-hay and alfalfa pellets in digestion crates at the Oscar Thomas Nutrition Center. Students assigned lambs to one of four supplemental treatments. Treatments were lambs supplemented with **Donuts** (including Twinkies, powdered and chocolate donuts, and products with fake fruit filling), **Chips** (including potato chips, fake cheese-flavored chips, and salty snack crackers), **Macaroni**, and **Barley** as a control.

What did they find? The lambs readily ate the expired products including the bland, hard macaroni, the salty chips, and the powdered sugared twinkies with the fake raspberry filling. Although they saw some minor differences among the different products on intake and digestion, none were of a magnitude that prompted concern. Maybe the biggest problem to feeding expired products is: How do you get all those twinkies and chips out of their wrappers without the graduate students eating them?

Student Quotes:

"I thought that this study was a great way to introduce students to animal science research methodology, while providing useful literature to the livestock industry. It also was an "outside the box" type experiment that exemplifies the growing trend of nontraditional livestock production." **Reid Redden, PhD Candidate**



Justin Uhrig and Dr. Hatfield analyzing sheep waste

"It was pretty entertaining to feed the lambs that would get really excited for their donuts, chips or macaroni. A couple of them would act like dogs begging for some scraps off of your dinner plate." **Jennifer Keithly, MS Candidate**

"With increasing feed costs, studying the use of alternative feeds such as using lower cost expired human foodstuffs could potentially benefit feedlots and the retained ownership rancher in terms of increased profits. This study is a potential starting point for other experiments to see if human foods can compete on a performance level with corn, barley, and other traditional feeds in feedlot diets. Actually seeing the wethers eat the three expired foods (donuts, potato/corn chips and macaroni) was amazing in itself!" **Ty McDonald, MS Candidate**

Other News



Dr. Jim Berardinelli has finished his last year of a three year appointment to the Editorial Board for **Journal of Animal Science**, Physiology and Endocrinology Section. He is a co-author of two chapters in a book available now titled: “Large Mammal Ecology in Central Yellowstone: A synthesis of 16 years of integrated field studies” published by Elsevier Press, Atlanta, GA.



Dr. Rachel Endecott has been accepted into the Western Extension Leadership Program (WELD), a regional leadership training program for Extension faculty. WELD interns experience a personal leadership inventory and assessment, conduct an individual innovative leadership project, and attend two leadership seminars. Rachel will travel to Denver March 30—April 3 for a training session.



Dr. Dennis Cash, Professor of Range Science, recently participated in the annual meeting for WERA 1014—*Intensive Pasture Management for Sustainable Livestock Production in the Western US* in Twin Falls, ID. This new CSREES committee is comprised of research and Extension faculty in the western region involved with improved pastures for managed grazing systems. Dennis will chair the WERA 1014 activities through 2010, including its annual meetings in Oregon (2009) and Montana (2010).

Dennis is also the incoming 2009 President of the Montana Association of County Agricultural Agents (MACAA). The MACAA is one of the oldest and most colorful state chapters of the National Association of County Agricultural Agents (NACAA).

Adjunct Professor Highlight: Dr. Michael Wehrman



Dr. Michael E. Wehrman grew up on a small farm in Shepherd, MT. Michael came to MSU on an athletic scholarship from the track and field team to pole vault. Michael received a B.S. in Animal Science in 1987. While at MSU he was involved in different research projects in reproductive physiology with Dr. Jim Berardinelli.

Michael received his M.S. in Reproductive Physiology from Texas A&M University. For his masters, he evaluated the effects of feeding high fat diets to cattle on ovarian follicular development. Besides his M.S. research, Michael worked with Dr. Dewey Kramer, a pioneer in embryology and embryo transfer technology in a number of species. In this setting, Michael developed his interest and skills in embryo transfer technology in cattle.

After completing his M.S., Michael began work on his Ph.D. in Reproductive Physiology with Dr. Jim Kinder at the University of Nebraska. That work focused on the effects of ovarian follicular development during estrus synchronization and superovulation on embryonic development and pregnancy rates after embryo transfer in cattle. At Nebraska, he was also involved with early research using controlled intra-vaginal drug release (CIDRs). This work was submitted to the USDA for government approval of CIDRs in the USA. In 1996, he received his Ph.D. in Reproductive Physiology from the University of Nebraska.

After graduation, Michael worked for Trans Ova Genetics in Iowa, Missouri and Montana. Michael was responsible for managing the embryo collection teams and the embryo lab.

In 2001, Michael established Rocky Mountain Reproductive Services (RMRS) in Belgrade, Montana. RMRS is a certified American Embryo Transfer Association company and offers a number of Embryo Transfer-related services in Montana, North Dakota, South Dakota and Wyoming. You can learn more about RMRS at their webpage: www.RockyMtnReproductive.com.

Dr. Wehrman co-teaches the senior-level “Assisted Reproductive Technologies” course with Dr. Jim Berardinelli. Students thrive on his “real world” experience.

Upcoming Dates

- March 16-20: MSU Spring Break
 April 17: MSU College of Agriculture Spring Scholarship Banquet (Bozeman, MT)
 April 17-18: Equine Conference, GranTree Inn (Bozeman, MT)
 April 21-22: Livestock Forum and Nutrition Conference (Bozeman, MT)
 May 8: MSU Spring 2009 Semester Ends
 May 9: MSU Commencement

Animal Biosciences Building Update

On my comments on Page 1, I highlighted the construction progress on our new Animal Biosciences Building. I also noted that we still need \$2.7 million to finish the building. Through extensive planning, we identified that a 40,000 square feet (\$15.7 million to complete) was needed to encompass all teaching, research and extension programs of the Animal and Range Sciences Department. Last winter, MSU's upper administration informed us that since only 80% of the funds had been raised to that point, the building would have to be 80% of the planned 40,000 square feet. This would have left certain programs in other buildings. Dean Jeff Jacobsen and others were able to convince the upper administration that it was important to build the 40,000 square "footprint", complete the building as much as possible, and shell out the rest, awaiting complete funding. This "phased" approach was approved. The functions of our teaching and extension programs will be met with Phase 1. Our research laboratories and support rooms (third floor) will await complete funding (Phase 2). Over the years, several buildings on the MSU campus have been constructed with this phased approach. One unique aspect of this approach is that, once complete, the building will be completely paid for, unlike many construction projects on campus which require bonds or other forms of long-term payment.

Thus, we still need donations to complete the building. We have received funds from individuals, families, corporations and groups. For example, a collection of 40 MSU alums contributed \$250 each to join the Rancher's Circle (\$10,000 minimum) under the name "Cool Cats". Recently, Animal and Range Sciences Faculty and Staff have garnered enough resources to also join the Rancher's Circle. We welcome your support.

Help Support Animal & 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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Drawing of new Animal Bioscience Building

www.animalrange.montana.edu

*Newsletter edited & compiled by: Susan Cooper
 With special thanks to the entire A&RS Administrative Team*

