

ANIMAL & RANGE SCIENCES NEWSLETTER

Volume 5, Issue 4

December 2012

Introduction from Dr. Glenn Duff, Department Head



The Department of Animal and Range Sciences program continues to grow in undergraduate and graduate student numbers. The official 15th class day curriculum counts are 19 Graduate Students and 319 Undergraduate Students (81 Equine Science; 69 Livestock Mgmt. & Industry; 70 Science; 49 Rangeland Ecology & Mgmt.; 47 Wildlife Habitat Ecology; and 3 Sustainable Livestock) for a total student population of 338. We were at 318 at the same time during 2011. Without a doubt, this increase reflects on the quality of our program and the dedication of faculty and staff to ensuring student success. I anticipate continued interest and growth for many years with the addition of our new faculty members.

In this issue, we will highlight some of the new equipment that our new faculty members have to work with. The new equipment allows our faculty to make use of the newest technology to answer tomorrow's questions. Funding for the new equipment was generously provided by the College of Agriculture/Montana Agriculture Experiment Station, Montana State University Vice President for Research, and Experimental Program to Stimulate Competitive Research (EPSCoR) funding from the National Science Foundation (NSF). Besides enhancing our research capabilities, this equipment will help us in attracting the best graduate students.

We also welcome several new graduate students to our program this fall. Graduate student education continues help us be successful in our future endeavors. Without these important individuals, our faculty would not be able to complete several of their research objectives.

Tom Wolfe will be retiring at the end of December. The Farrier School will continue to be offered and Bryce Kawasaki will serve as interim instructor for the program. We will be conducting a national search for a permanent replacement in the spring.

The Department of Animal and Range Sciences is currently recruiting an Extension Forage Specialist. Review of applicants will begin the first of January with anticipated starting date late spring 2013.

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Meet our Graduate Students

Jacob Anderson (Sioux Falls, SD) Jake is studying the decline of a riparian gallery forest in Devils Tower, Wyoming: Causation and management techniques for restoration. Major advisor: Dr. Clayton Marlow

Omolola Betiku (Osun State, Nigeria) Omolola is interested in finfish diet development. Her present research focus is using alternative ingredients in formulating cost-effective fish diets that support maximum growth and health of fish. Major advisor: Dr. Glenn Duff and Dr. Wendy Sealy

Ashley Boomer (Hall, MT) Ashley is studying pheromones in bovine excretions to be used to improve reproductive efficiency. Major advisor: Dr. Jim Berardinelli

Molly Butler (San Angelo, TX). Molly will be comparing lambs finished in confinement with lambs finished grazing cover crops. Major advisor: Dr. Pat Hatfield

Neto Garcia (Londrina, Brazil) Neto is studying the range vegetation at the National Bison Range in (Moiese, MT). Major advisor: Dr. Clayton Marlow

Brian Ham (Kalispell, MT) Brian is studying alternative protein sources in cutthroat trout diets. Major advisor(s): Dr. Glenn Duff and Dr. Wendy Sealy

Paula Helmecke (Hamel, Germany) Paula is studying the effects of psyllium supplementation on protein, triglycerides, serum electrolytes and packed cell volume in horses grazing rapidly growing cool season grasses. Major advisor: Dr. Shannon Moreaux

Katelyn Kohlbeck (Bozeman, MT) Katelyn is studying how temperament of Simmental beef steers affects tenderness of their meat. Major advisor: Dr. Jane Ann Boles

Kate Perz (Sayville, NY) Kate is studying the effect of growth rate of cattle on tenderness. Major advisor: Dr. Jane Ann Boles

Tucker Porter (Nortonville, KS) Tucker is using remote sensing techniques and geospatial analysis to manage rangelands. Major advisor(s): Dr. Bok Sowell, Dr. Chengci Chen and Dr. Rick Lawrence

Jaelyn Rohrs (Bolivar, MO) Jaelyn is studying Psyllium supplementation in grazing horses and the effects on metabolic and morphologic characteristics. Major advisor: Dr. Shannon Moreaux

Molly Runyon (St. James, MO) Molly is studying Aspen regeneration in response to beaver cutting and ungulate herbivory in the Eagle Creek drainage on the Northern Yellowstone Winter Range of Montana. Major advisor: Dr. Bok Sowell

Tulganyam (Sam) Samdanjigmed (Khovd, Mongolia). Sam is studying the potential ecological costs associated with bull dozed fire line (guard) including the potential for soil degradation, weed invasion and ecological threshold and associated barriers to restoration in Northern Agriculture. Major advisor: Dr. Craig Carr

Andy Schell (Bozeman, MT) Andy is working on attitude of professional wildlife managers regarding use of prescribed fire. Major advisor: Dr. Clayton Marlow

Kate Sharon (Dillon, MT) Kate is studying respiratory disease in cattle. Major advisor: Dr. Glenn Duff

Kaitlyn Spence (Grass Valley, CA) Kaitlyn is looking at fat supplementation on synchronizing beef heifers. Major advisor: Dr. Glenn Duff

Jeffrey Swartz (Terre Hill, PA). Jeffrey is studying the vaginal microbiome of sheep and correlating it with reproductive success. Major advisor: Dr. Carl Yeoman

Katie Tierney (Atascadero, CA) Katie is studying the long term effects of training on cattle grazing spotted knapweed and Canada thistle. Major advisor: Dr. Bret Olson

Amanda Vogstad (Dalum, Alberta, Canada) Amanda is studying the use of indirect calorimetry to quantify energy requirements of feedlot calves treated for bovine respiratory disease. Major advisor: Dr. Glenn Duff

Awards, Publications & Presentations

The title of Professor Emeritus of Forage Science was conferred on **S. Dennis Cash** in September of 2012.

The title of Professor Emeritus of Animal Science was conferred on **Leonard C. "Sandy" Gagnon** in September of 2012.

Pat Hatfield is Co-PI on a grant titled "Targeted grazing to reduce tillage: Environmental, ecological, and economic assessment of reintegrating animal and crop production." This grant will help fund Pat's new graduate student, Molly Butler.

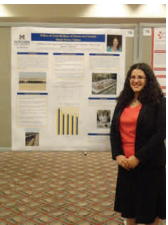
New publication: Mulliniks, J.T., S.H. Cox, M.E. Kemp, **R.L. Endecott**, R.C. Waterman, D. M. VanLeeuwen and M.K. Peterson. 2012. Relationship between body condition score at calving and reproductive performance in young postpartum cows grazing native range. *J. Anim Sci.* 90:2811-2817.

New publication: **Yeoman, C.J.**, N. Chia, P. Jeraldo, M. Sipos, N.D. Goldenfeld and B.A. White. 2012. The microbiome of the chicken gastrointestinal tract. *Anim. Health Res. Rev.* 13:89-99.

New publications: Browsing the Literature by **Jeff Mosley** in the [August 2012](#) and [October 2012](#) issues of the journal *Rangelands*. This section reviews new publications available about the art and science of rangeland management.

Jane Ann Boles along with her graduate students **Katharine Perz** and **Katelyn Kohlbeck** attended the International Congress of Meat Science and Technology (ICoMST) August 12th-17th in Montreal, Canada. This international conference provided a multitude of learning experiences on many topics in the meat science sector. The three presented posters at the meeting covering different topics (Jane Ann Boles - Use of Blood

Lactate as an Indicator of Response To Handling Stress in Beef Cattle; Katherine Perz - Effect of Growth Rate of Steers on Carcass Shear Force Values and Katelyn Kohlbeck in conjunction with Rodney Kott and Lisa Surber - Carcasses From Texel and Suffolk Sired Lambs Resulted in Similar Wholesale Cut Yield)



Kate Perz



Katelyn Kohlbeck

Mike Frisina was invited to give a presentation on the work he has been involved in with Pakistan. The title of his presentation was "Conservation Through Sustainable Use: A Torghar Model, Pakistan." The conference was "Integrating Human Dimensions into Fish & Wildlife Management" held in Breckenridge, CO on September 24-27, 2012.

Carl Yeoman was an invited speaker and session chair at the 5th annual Bertinoro Computational Biology Meeting in Bertinoro, Italy October 7 - 12. He presented work entitled "Exploring the auxiliary factors driving host-associated microbial ecology."

Carl Wambolt, Professor Emeritus, has been busy since retirement and has several recent publications listed below:

Beck, J.L., J.W. Connelly, **C.L. Wambolt**. 2012. Forum Paper: Consequences of treating Wyoming big sagebrush to enhance wildlife habitats. *Rangeland Ecology and Manage.* 65: 444-455.

Sowell B.F., C.L. Wambolt, J.K. Woodward, and V.R. Lane. 2011. Relationship of Wyoming big sagebrush cover to herbaceous vegetation. *Natural Resources and Environmental Issues: Vol. 16, Article 14.* Available at: <http://digitalcommons.usu.edu/nrei/vol16/iss1/14>

Thompson, S.K. and **C.L. Wambolt**. 2011. Long-term browsing impacts on Montana ungulate ranges. *Natural Resources and Environmental Issues: Vol.16, Article3.* Available at: <http://digitalcommons.usu.edu/nrei/vol16/iss1/3>

Wambolt, C.L. and R.J. Rens. 2011. Elk and fire impacts on mountain big sagebrush range in Yellowstone. *Natural Resources and Environmental Issues: Vol.16, Article11.* Available at: <http://digitalcommons.usu.edu/nrei/vol16/iss1/11>

Woodward, J.K., **C.L. Wambolt**, J. Newell, and **B.F. Sowell**. 2011. Sage-grouse (*Centrocercus urophasianus*) habitat in central Montana. *Natural Resources and Environmental Issues: Vol. 16, Article 4.* Available at: <http://digitalcommons.usu.edu/nrei/vol16/iss1/4>

Animal and Range Sciences Extension Highlight: Cecil Tharp



Cecil arrived at MSU in November 2003 when he began an appointment as an Entomological Research Associate working with Dr. Sue Blodgett, Department of Entomology. Prior to this position Cecil was employed as a Biological Technician at the USDA Agricultural Research Service at Brookings, South Dakota. In both positions Cecil studied new integrated pest management practices for managing agricultural insect pests. Cecil created insect factsheets, insect diagnostic keys, while investigated new and novel pesticide formulations for managing pests. He used this knowledge to respond to pest issues from concerned producers and ranchers across Montana and South Dakota.

As of January 2007 Cecil was hired as the MSU Pesticide Education Specialist. Since then he has created many novel training programs and publications to better serve the needs of approximately 6,500 private applicators and 56 pesticide education trainers across Montana. In 2009 Cecil created the first annual pesticide education train the trainer program for MSU IPM Specialists, Montana Department of Agriculture Officers and MSU Extension Agents. This program delivers intense pesticide trainings and training tools for educators to use at local programs. He also created the biannual Montana Integrated Pest Management Bulletin which serves as a platform to deliver pest/pesticide updates, tools and news stories to Montana citizens. Cecil administers the MSU Pesticide Education website that contains updated lists of approved private applicator programs, safety brochures, presentations for coordinators, safety videos, as well as 12 MSU Extension MontGuides and 2 pocket-guides Cecil has published on a variety of pesticide and IPM core topics.

He has taken particular interest in gaining feedback from pesticide applicators and using this feedback as a tool for creating tools for teaching pesticide education. Cecil's down to earth approach to pesticide education ties his personal applicator experiences into many pesticide education presentations and publications. He often includes his experiences as a lead in to draw audiences into controversial subjects in an interactive, friendly forum regarding applicator bad habits, poisonings, reading the label, and non-target damage from pesticide drift. Cecil has delivered data obtained from these programs at various state and regional programs across the United States. This information has been used to create new tools for educators that can increase impacts of educational programs.

Recent Events Held in the Animal Bioscience Building

July 27, 2012	Scientific Vendor Group, LLC, Vendor show for MSU
September 11, 2012	Montana Stockgrowers Leadership Forum
September 29, 2012	CRPRI Plant Identification Pilot Workshop
October 18, 2012	Montana State University Alumni Foundation hosted J.R. Simplot Company
October 25, 2012	Animal & Range Sciences Advisory Committee meeting
October 25, 2012	College of AG MAES Advisory Committee meeting
October 26, 2012	MSU Collegiate Stockgrowers reception for sponsors
October 31, 2012	BQA Training
November 28, 2012	MSU Ag Student Council mtg. with MSU President Waded Cruzado
December 5-8, 2012	AI Training



New Equipment Highlight

Highlighted below are some of the new equipment that our new faculty members have to work with is highlighted. Funding for the new equipment was generously provided by the College of Agriculture/Montana Agriculture Experiment Station, Montana State University Vice President for Research, and NSF EPSCoR funding. These resources are housed in the Animal Bioscience Building.



The Illumina MiSeq decodes the DNA or RNA sequences from up to 35 million nucleic acid molecules in a single 24 hour run. The Illumina MiSeq is being used by the ARNR521 Advanced Ruminant Nutrition class and several graduate students to examine the diversity of microscopic life (such as bacteria) that is so important to the health, nutrition and development of livestock. Previous methods based on culturing microbes are now recognized as ignoring up to 99% of the bacteria that reside in any single environment. Managing the massive amount of data produced by the MiSeq has also been enabled through the purchase of a state of the art computational resource that is the equivalent of approximately 200 powerful computers.

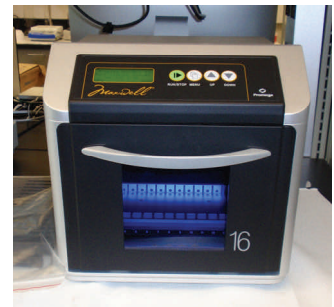
Promega Maxwell 16 Nucleic Acid Extraction Machine

The Maxwell® 16 System offers automation and walk-away purification of nucleic acids, that saves time and labor by eliminating reagent preparation, pipetting and centrifugation steps. It allows you to extract DNA, RNA, and Protein from up to 16 samples in 35-50 minutes.



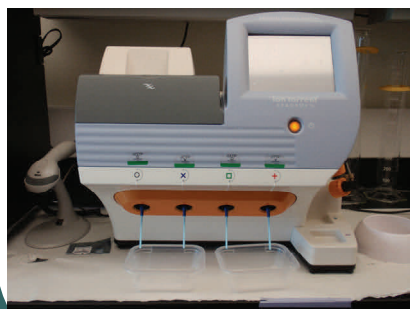
Two thermocyclers

The thermocyclers allow amplification of DNA samples for sequencing prep or other further analysis.



Agilent 2200 TapeStation Bioanalyzer

This performs quality control on RNA and DNA samples in a high-throughput manner. It determines quality and quantity of RNA/DNA in 96 samples in about an hour. This allows for quickly determining the amount of sample needed for further experiments and ensures that the samples used are of sufficient quality for reliable determination of genotype or gene expression.



Ion Torrent Personal Genome Machine

Powered by Ion Torrent™ semiconductor chip technology, the Ion Personal Genome Machine™ (PGM™) Sequencer delivers the fastest run times, at the most affordable price, of any next-generation sequencer. High accuracy, and long reads are the benefits of this sequencer. This will be used for the sequencing of genomic DNA, exomes, gene expression profiling, miRNA profiling, ChIP-seq (chromatin immune precipitation sequencing) and genotyping by sequencing.

Where Has Glenn Been?

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

September 2012:

Ft. Keogh Focus Group Meeting (Miles City, MT)

October 2012:

LEAD 21 (Kansas City, MO)

November 2012:

Montana Wool Growers Annual Convention (Billings, MT)

December 2012:

Montana Stockgrowers Annual Convention (Billings, MT)



Wool Judging Team Comes Back to MSU

With the help of Drs. Rodney Kott and Lisa Surber, MSU has revived the wool judging team at MSU. The last team that competed was in 1990. The team will compete at 2013 National Western Stock Show in Denver January 17th. The 2013 team will have four members Evan Helle, Karoline Rose, Kendall Green, and Andrew Raftopoulos. Evan is from Dillon, Montana where his parents, John and Karen Helle, raise purebred Rambouillet sheep and Angus cattle. He is a junior at Montana State University studying Agriculture Business. His favorite activities include skiing, hunting, fishing and working on the family ranch.

Karoline is from Three Forks, Montana and was in 4-H for 9 years, raising lambs, steers and was involved with cooking and sewing. Her parents John and Karen Rose are very active in many areas of agriculture. Karoline is a junior at Montana State. She has a double major in Animal Science, the livestock production option and Agriculture Education, the relations option. Recently, She founded Collegiate Stockgrowers and serves as the current President.

Kendall is from Cohagen, Montana. where his parents, Mike and Thelma Green, run cows and sheep (Mike was on the last wool judging team in 1990). Kendall is a sophomore studying Agricultural Business and is a member of the MSU Rodeo Team. He was involved in 4-H, FFA, and rodeo while in high school. Upon graduation from MSU he hopes to return home and take over the family ranch.



Andrew is from Craig, Colorado where his parents, Steve and Toni Raftopoulos run a large livestock operation including sheep and cattle. He is currently a junior working towards B.S. degree in Animal and Range Science, focusing on farm and livestock management. After graduating his goal is to continue to operate and manage the family ranch.

Anyone wishing to help support the wool judging team should contact Rodney or Lisa at 406-994-3415.

Left to right: Lisa Surber, Evan Helle, Karoline Rose, Kendall Green and Andrew Raftopoulos.

Undergraduate Student Highlights: Emily Gates and Rebecca Johnstone



Hello! My name is Emily Gates and I am originally from Billings, MT. Currently I am working toward earning a double major in Animal Science and Natural Resource Ecology and Management.

I got into agriculture later in life than most of my classmates. I have grown up close to agriculture, with deep roots of both farming and ranching in my family, but four years ago I would never have imagined myself building my career in this field, nor becoming so deeply attached to it.

During my first year at MSU, it became clear that I needed a swift change of major. I wanted to be passionate about my education. I soon realized that there was nothing that I could be more passionate about than the single most influential industry in my home state. Soon after this realization, I found myself at home in the College of Ag's department of Animal and Range Sciences.

This summer, I had the opportunity to work with MSU at the Southern Agricultural Research Center. I found this opportunity especially exciting as my career goal is to do research that will be beneficial to the producers and other members of the agricultural community. It was fulfilling to be a part of the successful research that MSU continues to do.

Outside of school, I just enjoy being outdoors; especially when hiking, fishing or golfing is included. After graduating in the spring of 2014, I plan on applying to graduate schools with the ultimate goal of earning a PhD in Natural Resource Ecology. With this, I hope to become a research scientist and professor in order to pass the benefits of my education and work back to the industry that I respect so much.

Hi my name is Rebecca Johnstone. I am a senior at Montana State University in the Natural Resources and Rangeland Ecology department with the wildlife option. I grew up in Chewelah, Washington which is a town of 3,000 people. Being in such a small town and with the help of my parents and our camping and backpacking trips, I developed a love of nature and all that it offers. Every day I realize how diverse it is.

After transferring from Cal Poly State University studying architecture, I realized that I was more interested in being and working outside in the environment, so I chose the wildlife option in the Ag department. MSU interested me because of its location (the mountains) and its well known agriculture department. I love the department because its faculty are always helping make sure you succeed and go places.

This last summer I had the opportunity to work for KC Harvey environmental company consulting for BP and Devon natural gas sites to reclaim their plant cover. The experience lined up perfectly with all the plant identification classes I had taken the year before and it allowed me to see how my education can actually be effective. We would go to several sites each day and each one could be different, in the soil or the plants that inhabited it. Consulting in another site also allowed me experience in learning new species. I realized how much more important my studies seem when I can apply them in real life to help improve the recovery of natural gas sites.

Currently, I have also had the opportunity to study abroad in Botswana. I love wildlife and Botswana is home to the world's largest inland delta that is home to thousands of elephants, hippos, and crocodiles. Not to mention all the impala and water buffalo. I had originally planned to help with research on the delta but unfortunately all the work is done at a facility 10 hours from the school. I did have the opportunity to volunteer at Mokolodi Nature Reserve which house many wildlife and has a sanctuary for injured animals. It was so cool to be able to actually work with monkeys, tortoises and vultures. We even got to assess the health of all the snakes in the sanctuary each month. They have cobras, rock pythons, and puff adders. This experience along with all the traveling I have done has showed me how much I want to be able to work internationally studying or working with wildlife. After I graduate I plan on doing the master's international program with the Peace Corps. I don't know which school I will do it with yet though. My experience at Montana State University has helped me become more excited about learning and more interested in wildlife.



Other News



Carl Yeoman would like to report that our department is now a member of the Rumen Microbial Genomics Network (RMG: <http://www.rmgnetwork.org.nz/>). The RMG is a multinational collaboration with representatives from 12 countries around the world. The RMG is currently backed by a \$40 million investment from the New Zealand government and significant investment from the Joint Genome Institute (JGI) of the USA. The Network has two founder projects 1) the global rumen census (<http://www.globalrumencensus.org.nz/>), which seeks to characterize the diversity of microbes that occupy the rumen and their variation associated with diet, breed, environment and management system; and 2) the Hungate 1000 (<http://www.hungate1000.org.nz/>), which seeks to obtain genomic information on 1000 rumen microbial isolates. Our participation will ensure Montana's beef and sheep industries are represented in these initiatives, providing these industries the opportunities to evaluate their systems in the context of world agriculture. The multinational RMG group is looking to improve productivity and reduce environmental impacts through improving our understanding of the function and diversity of rumen microbes.

Rachel Frost was an invited instructor for a Pasture Management, Professional Development Workshop hosted by the University of Idaho Cooperative Extension Service in Salmon, Idaho in September 2012. Frost joined instructors from Idaho, Washington, Oregon, Colorado, Wyoming and West Virginia to discuss a variety of topics relevant to the development and management of sustainable forage-livestock systems. Frost's presentation was entitled "Applications of Behavioral Principles to Pasture and Grazing Management". Approximately 40 people attended the workshop which included classroom instruction and field exercises.



Jim Knight, Professor and Extension Wildlife Specialist at Montana State University and Rachel Frost, Range Research Scientist at Montana State University were part of the 55 people that gathered near Zortman, Montana, on September 20 for a 50 mile tour loop to examine grazing successes by local ranchers and their agency partners. The tour was hosted by the Rancher's Stewardship Alliance (a rancher-led conservation nonprofit) and Montana State University Extension, with speakers from the NRCS, MSU Extension, BLM, The Nature Conservancy, the Ranchers Stewardship Alliance and area ranchers whose families have been managing the land for four or five generations. The tour audience was a diverse mix of ranchers, environmental advocates, and staff from state and federal resource management agencies.



Jim gave a short presentation on the positive interactions of livestock grazing and wildlife management. Sagegrouse habitat was a focus of the tour and discussed the potential for livestock grazing to provide for production of forbs, an essential food component for sage grouse brood survival. Rachel addressed the group on the practice of targeted livestock grazing. Prescribed grazing is the application of the appropriate species and class of livestock at the correct time, intensity and frequency to accomplish specific vegetation management goals.

Student Awards and Scholarships

The Department of Animal & Range Sciences is pleased to announce the recipients of the 2012-2013 scholarships

Martin Burris Scholarship: Amy Dellera (Belgrade, MT)

A.B. Cobb III Memorial Scholarship: Cedessa Berg (Roundup, MT)

Grieco Animal Science Award: William Sparks (Plevna, MT)

Hilger Ranch Memorial Scholarship: Shelby Dalke (Warden, MT) and Jane'a Ehlke (Townsend, MT)

Michael J. McLoughlin Scholarship: Rachael Tatarka (Bozeman, MT) and Erika Metroka (Helena, MT)

Dr. E.L. Moody Memorial Scholarship: Avery Broumas (Modesto, CA)

Payne, Ryerson, Taylor Range Scholarship: Rebecca Johnstone (Chewelah, WA)

Sitz Ranch Management Team Endowment: Lyle Peters (Sidney, MT)

Oscar O. and Carol H. Thomas Memorial Scholar-

ship: Andrea Hearron (Colbert, WA)

Verl M. Thomas Memorial Scholarship: Katie Tierney (Atascadero, CA)

Fred S. and Violet E. Willson Scholarship: Sarah Wiedenmeyer (Spearfish, SD)

Ray Woodward Incoming Freshman Scholarship: Raquel Boyd (Alder, MT) and Brady Johnson (Hinsdale, MT)

Chuck & Penny Jarecki Scholarship: Ben Lynn (Clyde Park, MT)

Northern Great Plain, SRM Gerald Sharp Memorial Scholarship: Lauren Klempel (Joliet, MT)

Don Ryerson/Ag Lenders Scholarship: Andrew Sternhagen (Bozeman, MT) and Haleigh Lichtenberg (Apple Valley, CA)

Chuck McGlothlin Outstanding Graduating Senior Range Belt Buckle: Scott Anderson (Alexander, ND)

Upcoming Dates

December 13-15, 2012	Montana Stockgrowers & Montana CattleWomen Annual Convention (Billings, MT)
December 14, 2012	2012 MSU Fall Semester Ends
December 15, 2012	Commencement
December 24-25, 2012	Christmas Holiday (MSU offices closed)
January 1, 2013	New Year's Day Holiday (MSU offices closed)
January 9, 2013	2013 MSU Spring Semester Begins
January 21, 2013	Martin Luther King Holiday (MSU offices closed, no classes)
February 18, 2013	President's Day (MSU offices closed, no classes)
March 11-15, 2013	MSU Spring Break

Happy Holidays from the Glenn and Donna Duff



ARNR 521 Class: From the Barn to the Classroom

Pat Hatfield's Advanced Ruminant Nutrition Class gathering rumen and rumen samples with Dr. Bruce Sorensen (local Veterinarian)



Dr. Sorensen and students using the downdraft laboratory tables (provided by Cargill) in the Animal Bioscience Building for hands-on learning in the classroom.

Like Us on Facebook 

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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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The new Animal Bioscience Building, an example of how donations make a difference.

