

# ANIMAL & RANGE SCIENCES NEWSLETTER

Volume 6, Issue 2

September 2013

## Introduction from Dr. Patrick Hatfield, Interim Department Head



Welcome to the latest edition of the Animal and Range Sciences Newsletter. As many of you are aware, Dr. Glenn Duff was asked to step in as Interim Dean for the Montana State University (MSU) College of Agriculture. Due to this move, I would like to introduce myself as the new Interim Department Head of the Animal and Range Sciences Department.

Let me take this opportunity to tell you a little bit about myself. I'm a Montana native that received my BS in Range Science from MSU in 1983. From there I went to New Mexico State University for a MS in Range and finally a PhD from the University of Nebraska in Animal Science. I spent 8 years as a research scientist at the U.S. Sheep Experiment Station in Dubois, Idaho before joining the faculty in the Department of Animal and Range Sciences in 1996. My research is focused on two main areas: Nutritional strategies to improve sheep production and incorporating sheep into farming systems to reduce off farm inputs. I teach Livestock in Sustainable Systems, Applied Techniques in Livestock Management, Sheep, Sheep Management and a graduate course in Ruminant Nutrition. My wife, Nancy, is an elementary school librarian. Nancy and I have 2 children: Jillian is a senior in Animal Science at MSU and Sam is currently serving in the Marine Corp.

The Department of Animal and Range Sciences has very impressive student enrollment numbers for the Fall 2013 semester. We currently have 16 graduate students and 319 undergraduate students.

About every 10 years departments on the MSU campus are to have an external review that evaluates the efficacy of our educational, research and outreach efforts. This evaluation is used by the Department Head, Dean, Provost and President when allocating everything from classroom and laboratory space to graduate stipends and faculty hiring. Our external review is scheduled for October 9-10, 2013. Please take a look at our [review schedule](#) and if you are available to drop by at any of the events marked in red we would appreciate your support of the department. Feel free to contact me if you have any questions (PH: 406-994-3721 or Email: [hatfield@montana.edu](mailto:hatfield@montana.edu)).

Thank you for continuing to support our program and please stop by to see us when you are in Bozeman.

## Inside this issue:

Extension Research Highlight	2	Don Kress ASAS Fellow Award/ Other News	7
Awards, Publications & Presentations	3	2013 Youth Horsemanship School	8
Awards, Publications & Presentations (cont'd)	4	Goodbye and Good Luck to Dr. Rodney Kott	9
Recent Events held in the Animal Bioscience Bldg.	4	Upcoming Dates	9
Western Section American Society of Animal Science	5	Outside Classrooms on Campus	10
Western Section (cont'd)	6	Current News: Recruiting for new Positions	11

## Extension Research Highlight—Veterinary Entomology “Controlling Horn Flies with Insecticide Ear Tags”



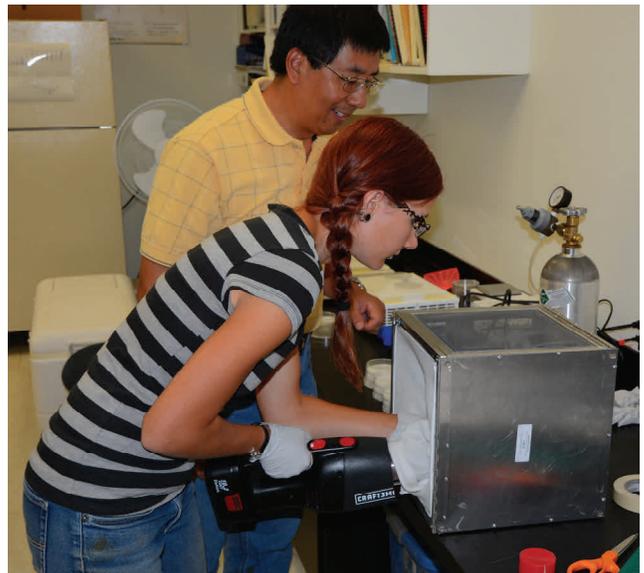
*Nathalia Mateus, Marni Rolston and Lauren Larios count surviving flies in petri dishes during horn fly bioassay.*

The horn fly is the most important summer time pest attacking cattle in Montana. It has been reported that a single horn fly will bite and suck blood from an animal more than 20 times per day. Left uncontrolled, horn flies can quickly reach 500 to 1,000 flies per animal and remain at or above that level for most of the summer. Infested animals are constantly irritated and moving to find relief from the biting flies. Measured economic losses due to horn flies include reduced weight gains, lower milk production, inefficient pasture utilization, and interrupted grazing.

Of the methods available to control horn flies (dust bags, oilers, sprays, pour-ons, mineral containing insecticide), insecticide ear tags have frequently been used. One problem however has been the development of resistance to commonly used insecticides in the tags. As a result some producers have abandoned the use of ear tags in favor of other methods for fly control.

We examined preventing or delaying horn fly resistance by using an ear tag rotation scheme where tags containing different insecticides were used during a six year period. For this study, conducted at MSU Ft. Ellis, the following tags were used: Year 1 – Python Magnum containing the pyrethroid zeta-cypermethrin, Year 2 – Warrior containing the organophosphates chlorpyrifos and diazinon, Year 3 – XP 820 containing the ivermectin-type compound abamectin, Year 4 – Python Magnum, Year 5 – Warrior, Year 6 – XP 820. Each year, cattle in the treated group were tagged in late spring and turned out to pasture the first of June; the untreated cattle (control group) were placed in an adjacent pasture. Horn fly counts were made weekly from June – August. Laboratory bioassays were conducted in 2013 on field-caught flies from the control group to determine if resistance to the insecticides had developed. These results were compared to bioassay results from a susceptible horn fly colony located at the USDA Livestock Insect Research Lab in Kerrville, Texas.

Horn fly control for the season was very good to excellent for each of the six years. Bioassays demonstrated that Ft. Ellis flies were susceptible to the ear tag insecticides and there was no indication of resistance developing. Thus, a rotation scheme using different insecticides prevented resistance and keeps ear tags as a viable option for producers for horn fly control.



*Lauren Larios and Dr. Andrews Li, USDA Research Entomologist, collect horn flies for bioassay testing.*

For more information on horn fly control contact Greg Johnson, 406-994-3875, [gdi@montana.edu](mailto:gdi@montana.edu).

## Awards, Publications & Presentations

New publication: **Sager, B.** Cobalt Deficiency in Ruminants, In: BP Smith, ed. Large Animal Internal Medicine. 5th ed. 2013, Mosby Publishing, Philadelphia, Pa.

New publication: Browsing the Literature by **Jeff Mosley** in the [June 2013](#) issue of the journal Rangelands.

New publication: Browsing the Literature by **Jeff Mosley** in the [August 2013](#) issue of the journal Rangelands.

New publication: **Sager, B.** A preliminary study on the effect of cobalt supplementation on RB51 Brucella abortus antibody response in weaned beef calves. In: AABP Proceedings: Bovine Practitioner, Vol. 47, No. 2, 2013.

New publication: **Frisina, M.R.** and Frisina, R.M. (2012). [Influence of trophy harvest on the population age structure of Argali Ovis Ammon in Mongolia](#). J. Bombay Nat. Hist. Soc., 109(3) 173-176.

New publication: Redden, R.R., **L.M.M. Surber**, A.V. Grove, **R.W. Kott**. 2013. [Growth efficiency of ewe lambs classified into residual feed intake groups and pen fed a restricted amount of feed](#). Small Rum. Res. 114 (2013) 214-219.

New publication: B.K. Karisa, **J. Thomson**, Z. Wang, P. Stothard, S.S. Moore and G.S. Plastow. [Candidate genes and single nucleotide polymorphisms associated with variation in residual feed intake in beef cattle](#). J. Anim. Sci. 2013, 91:3502-3513.

New publication: Amato, K.R., **Yeoman, C.J.**, Kent, A., Righini, N., Carbonero, F., Estrada, A., Gaskins, H. R., Stumpf, R.M., Yildirim, S., Torralba, M., Gillis, M., Wilson, B.A., Nelson, K.E., White, B.A., and Leigh, S. R. 2013. [Habitat degradation impacts black howler monkey \(Alouatta pigra\) gastrointestinal microbiomes](#). ISME J. 7:1344-1353. ([This Manuscript Featured as the Editors Choice in April 12, 2013 edition of Science Magazine](#)).

New publication: Vodovnik, M., Duncan, S.H., Reid, M. D., Cantlay, L., Turner, K., Parkhill, J., Lamed, R., **Yeoman, C.J.**, Miller, M.E., White, B.A., Bayer, E.A., Marinšek-Logar, R., and Flint, H.J. 2013. [Expression of cellulosome components and type IV pili within the extracellular proteome of Ruminococcus flavefaciens 007](#). PLoS One 8:e65333.

New grant: **Carl J. Yeoman**, Gibson Gaylord, and Dan Bearden were awarded \$800,000 from USDA-NIFA through the organizations Climate Change Program for a project entitled "Development Of Dietary Interventions To Mitigate Climate-Induced Alterations Of Rainbow Trout (Oncorhynchus mykiss) Gut Microbial Populations and Protein Metabolism".

New grant: **Carl J. Yeoman** and David Weaver were awarded \$45,800 from the Montana Wheat & Barley Committee for a project entitled "Determining the Potential of Wheat Stem Sawfly Endosymbiotic Microbiota for Exploitation in Developing Unique Management Strategies".

**Carl J. Yeoman** was a speaker at the Wellcome trust's Exploring Human Host-Microbiome Interactions in Health & Disease conference in Cambridge, UK July 8 - 10. He also was an invited visiting scientist at Aberystwyth University (Aberystwyth, UK; June 26 - July 3) and the National Institute for Agricultural Research (INRA Clermont-Ferrand, France; July 13 - 21).

New publication: **Ragen, D.L.**, A.N. Hafla, J.I. Keithly, T.J. McDonald, B. Nichols, J. Peterson, R.R. Redden, J. Uhrig, L. Voigt, A. Kellom, **P.G. Hatfield**. 2013. [Effects of supplementation of expired human foodstuffs on intake and digestion of wethers fed a base diet of grass hay and alfalfa pellets](#). Sheep & Goat Res. J., 28:1-5

New publication: **Barsotti, J.L.**, Sainju, U.M., Lenssen, A.W., Montagne, C., and **Hatfield, P.G.** 2013. [Crop yields and soil organic matter responses to sheep grazing in US northern Great Plains](#). 2013. Soil & Tillage Res. 134:133-141.

New publication: Lenssen, A.W., Sainju, U.M. and **Hatfield, P. G.** 2013. [Integrating sheep grazing into wheat-fallow systems: Crop yield and soil properties](#). 2013. Field Crop Res. 146: 5-85.

## Awards, Publications & Presentations (continued)

New publication: B.K. Karisa, **Thomson J.**, Wang, Z., Bruce, H.L., Plastow, G.S., and Moore, S.S. 2013. [Canidate genes and biological pathways associated with carcass quality traits in beef cattle](#). *Can. J. Anim. Sci.* 93:295-306.

New Publication: Friesen, K.M. and **G.D. Johnson**. 2013. [Mosquito and West Nile virus surveillance in northeast Montana](#), 2005-2006. *Med Vet Entomol.* 27: 1 – 9.

New publication: **Johnson, G.D., H.B. Goosey, M.G. Rolston**, W.L. Miller, D.G. Hokit, R.R. Redden, and **R.J. Kott**. 2013. [Evaluation of mosquito responses to pyrethroid insecticides topically applied to sheep](#). *J. American Mosq. Control Assoc.* 29:146 – 153

New publication: Friesen, K.M. and **G.D. Johnson**. 2013. [Evaluation of methods for collecting blood engorged mosquitoes \(Diptera: Culicidae\) from habitats within a wildlife refuge in northeast Montana](#). *J. American Mosq. Control Assoc.* 29: 102 –107.

New publication: Friesen, K.M. and **G.D. Johnson**. 2013. [Stable fly \(Diptera: Muscidae\) phenology in a mixed agricultural-wildlife ecosystem in northeast Montana](#). *Environ. Entomol.* 42: 49 – 57.

New publication: Hokit, G., S. Alvey, J. Geiger, **G. Johnson, M. Rolston**, D. Kinsey, and N. Tall Bear. 2013. [Using undergraduate researchers to build vector and West Nile virus surveillance capacity](#). *Int. J. Environ. Res. Public Health.* 10: 3192 – 3202.

**New publication: Rolston, M. and G. Johnson.** 2013. Ticks on companion animals. MSU Extension Service. MT201303AG.

New publication: Barsotti, J.L., U.M. Sainju, A.W. Lenssen, C. Montagne, and P.G. Hatfield. 2013. [Net greenhouse gas emissions affected by sheep grazing in dryland cropping systems](#). 2013. *Soil Sci. Soc. of Am. J.* 77:1012-1025.

MSU Extension Range Management Specialist **Jeff Mosley** and Park County Extension Agent Tracy Mosley co-presented an award-winning poster entitled, "The Next 100 Years of Rangeland- and Pasture-Based Livestock Production--Opportunities and Responsibilities for Extension Educators". The poster, presented at the Joint Council of Extension Professionals Galaxy IV Conference in Pittsburgh, Pennsylvania, received The Green Award from the Association of Natural Resource Extension Professionals in recognition for leadership in Extension sustainability programming.

## Recent Events Held in the Animal Bioscience Building

June 10-13, 2013	Yellowstone Wildlife Class
June 17-21, 2013	Western Section American Society Animal Science (WSASAS) 85th Annual Meeting
July 30, 2013	Montana Arts Council
September 12-14, 2013	REAL Montana—Building a Leader
September 17-18, 2013	ADVANCE Grant Writing Workshop (MSU)



## Western Section American Society of Animal Science 85th Annual Meeting at Montana State University

The 85th Annual Meeting of the Western Section American Society of Animal Science (WSASAS) was held at Montana State University (MSU) in Bozeman on June 19-21, 2013. The Animal & Range Sciences Department was delighted to help coordinate this meeting.

The meeting got underway on June 19 with both a Sheep Symposium and a Beef Symposium. The Sheep Symposium was titled "Integrating Advanced Concepts into Traditional Practices" and was held at the Museum of the Rockies. The Beef Symposium was titled "Sustainable Production and Management Practices of Ranches in Southwestern Montana. This symposium was a tour to ranches in the Gallatin and Madison Valleys and included several guest speakers at each stop.



*Award dinner at Copper Spring Ranch*

Faculty, staff and students of the Animal and Range Sciences Department at MSU participated in this meeting and were well represented with presentations, posters and awards.



*L to R: Russell Quinlan, Lane Schmitt, Rachel Endecott (advisor), Katy Klick and Drew Gaskill*

The MSU Academic Quadrathlon team won the Western Region Academic Quadrathlon contest, held in conjunction with WSASAS annual meeting, June 17-18 at MSU. Drew Gaskill of Broadus, Katy Klick of Simms, Russell Quinlan of Forsyth, and Lane Schmitt of Chinook competed in a four-part contest that consisted of a comprehensive written exam, impromptu oral presentation, hands-on lab practicum, and a double-elimination

quiz bowl tournament. The MSU team finished in a 3-way tie for first place, which was broken by the results of the lab practicum, which MSU won.

The team competed with eight other western region universities, including the University of Arizona, California State University-Chico, Colorado State University, Brigham Young University-Idaho, New Mexico State University, Oregon State University, Utah State University, and University of Wyoming. The team moved on to compete at the national contest in Indianapolis July 8-9, where they finished in third place, competing against Penn State University, Oklahoma State University, and Kansas State University. The Academic Quadrathlon team is advised by Rachel Endecott.



*The team works at a section of the dairy station at the national lab practicum hosted by Purdue University.*

## Western Section American Society of Animal Science 85th Annual Meeting at Montana State University (cont'd)



*Rodney Kott getting ready to present the Keynote address at the Sheep Symposium*

Keynote address at Sheep Symposium: **Rodney Kott** "Impact of Research on the Sheep Industry"

Presentation at Sheep Symposium: **Rachel Frost** "Alternative Grazing Strategies for Industry Diversification and Rangeland Improvement."

Presentation at Beef Symposium: **Rachel Endecott** "Supplementation During Drought"

Presentation at Beef Symposium: **Don Kress** "Heterosis: The Forgotten Free Lunch"

Presentation at Young Scholars Recognition Program: **Kate Sharon** "Effects of on-arrival, delayed vaccination and supplemental lysine on performance, antibody titer, temperature and metabolic profiles in response to modified-live viral respiratory vaccination"

Graduate Student Paper Competition: **Jeffery Swartz** "Effects of forage particle size on digestibility in cross-bred lambs"

Graduate Student Paper Competition: **Amanda Vogstad** "Use of a portable metabolic chamber for measuring metabolic rates in cattle of varying body weights"

Graduate Student Paper Competition: **Kate Sharon** "Supplemental lysine does not affect animal performance, antibody titer, or rectal temperature in response to a modified-live viral respiratory vaccine in neonatal Holstein calves"

Presentation at Ruminant & Non-Ruminant Nutrition Session: **Omolola Betiku** "Growth performance of rainbow trout (*Oncorhynchus mykiss*) fed plant and animal protein blend feeds"

Presentation on Ruminant & Non-Ruminant Nutrition Session: **Jaelyn Rohrs** "Metabolic and morphologic effects of psyllium supplementation in horses grazing rapidly growing cool season grass"

2013 WSASAS Distinguished Service Award: **Patrick Hatfield**, PhD, Professor, Animal Science, Montana State University

Poster Presentation: **Hayes Goosey** "Evaluation of mosquito responses to pyrethroid insecticides topically applied to sheep"

Presentation at Ruminant & Non-Ruminant Nutrition Session: **Devon Ragen** "Effects of swath grazing pea-barley forage, bale-fed pea-barley forage and straw stubble grazing on ewe body weight and number of lambs born"

2013 Young Scholar Recognition Program: **Kate Sharon**, Graduate Student, Animal Science, Montana State University



*Glenn Duff and Pat Hatfield with the Distinguished Service*



*Kate Sharon (second person in on the right) next to Glenn Duff receiving the Young Scholar Recognition Award*

## Congratulations to Don Kress, Professor Emeritus On receiving the American Society of Animal Science Fellow Award

Don Kress, professor emeritus at Montana State University, has received the American Society of Animal Science (ASAS) Fellow Award in honor of his research in the beef industry.

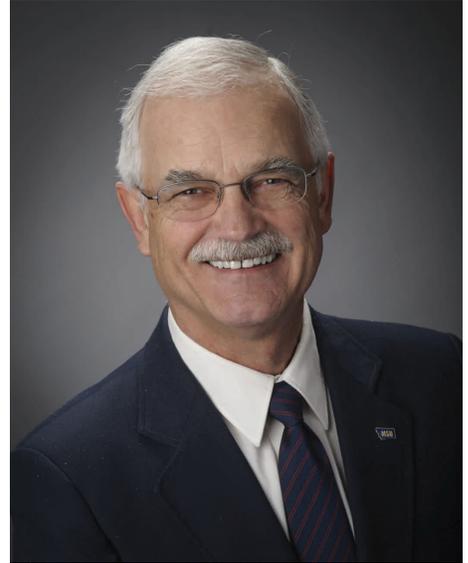
Kress received the award July 9, 2013, at the ASAS national awards program in Indianapolis.

Kress was recognized for improving the beef industry through the study of genetics and breeding. He studied the genetics of a variety of traits under Montana range conditions, including calf growth rate, cow size, cow milk production, cow maternal ability and carcass characteristics. He cooperated with researchers at MSU's Northern Agricultural Research Center near Havre to show that maternal heterosis (hybrid vigor) was especially important for Montana's commercial beef herds. Kress has also been an author or coauthor of more than 200 scientific journals and 100 abstracts.

Kress was raised on a beef cattle, hay and small grains operation in Idaho. From there, he attended the University of Idaho where he received his bachelor's degree and was recognized as an outstanding senior. He then attended the University of Wisconsin, where he earned his master's and doctoral degrees in animal science, genetics and statistics.

Kress came to MSU in 1970 as an assistant professor in the Department of Animal and Range Sciences. Over the next 35 years, he taught graduate and undergraduate courses related to cattle and genetics. Kress was named associate dean of the MSU College of Agriculture in 2001. Kress retired in 2005.

The ASAS Fellow is presented to animal scientists who have made excellent contributions to the animal industry and have had continuous membership in the ASAS for at least 25 years. ASAS is a professional organization that serves more than 5,000 animal scientists and producers around the world.



*Don Kress, professor emeritus at Montana State University, has received the American Society of Animal Science (ASAS) Fellow Award in honor of his research in the beef industry. (MSU photo by Kelly Gorham).*

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## Other News



**Carl J. Yeoman** and Seth Walk (Microbiology) have had a new class proposal approved. BIOM405 'Host-associated Microbial Ecosystems' will be run annually beginning this fall semester and will focus on the microbes (bacteria, fungi, yeast etc.) that live in and on human's, livestock, and other animals and their essential roles in health, nutrition, and development.

## 2013 Youth Horsemanship School

In June, 53 enthusiastic young horse lovers from the ages 9-17 attended the annual Youth Horsemanship School at MSU's Miller stock Pavilion and BART Farm. Students from across the region lived in MSU dorms and enjoyed 5 days of equitation instruction, equine education and personal development. The annual event is hosted by the Department of Animal and Range Sciences and MSU Extension. The school was directed by Dr. Shannon Moreaux,



*1st row: Dr. Shannon Moreaux, Andi Shockley and Julie Hager  
2nd row: Student Interns*

one of the department's equine science instructors and MSU's extension equine specialist. The Youth Horsemanship School was facilitated this year by long time organizer Julie Hager, equitation instructor and manager Andi Shockley and a volunteer cast of current students, former students and local equine industry professionals. Student interns Bridgette Lake, Danielle Saudenmeyer, Lane Preston-Graham, Katie Vincent, Josh Butcher, Juliet Flynn, Rachael Tatarka, Emily Peterson, Andrea Hearron and Jessie Williams developed and taught the five day program. Volunteer instructors from the local equine industry included Rob Brooks from R.O. Brooks Leather and veterinarians from Montana Equine Medical and Surgical Center. Our instructors did an amazing job – Thank you!

The Youth Horsemanship School or “horse camp”, as it is affectionately called, participants learned how to treat equine emergencies, load and haul horses safely, goat tie, calf rope and even had a chance to make lariat art out of recycled ropes. “Campers” even made personalized leather nose bands for their horse's halters. Camp attendees improved their riding skills while learning horsemanship exercises and competing in equestrian events such as barrel racing, poll bending and team penning. On the last day of camp the young horse enthusiast displayed all that they had learned during the week for parents and special guests.

This year's youth horsemanship camp would not have been possible without our wonderful volunteer chaperones and the generous donations from local businesses. Sponsors included Danhof Chevrolet, Triple Crown Nutrition, Four Corners Saddlery, Bozeman Saddle Outlet, Montana Farm Bureau, Larry Zabel Foundation, Montana Equine Medical and Surgical Center, RO Brooks Custom Leather, Wheat Montana, Scenic City Trucking & Trailer Sales, Heartland Individual & Family Coaching, Inc., SHOP, City of Bozeman, Rob & Laura Hager, Big Timberworks and Double Diamond Halter Co.

Importantly, two students received scholarships to attend the school this year thanks to supportive donors. The MSU Youth Horsemanship School Scholarship Fund provides horses, tack and accommodations to young horse lovers who would not otherwise have the opportunity to experience the value of the horse-human bond. To support this critical fund please contact Julie Hager or Dr. Moreaux in the Animal and Range Science Department.

For more information you may contact Dr. Shannon Moreaux ([Moreaux@montana.edu](mailto:Moreaux@montana.edu)) or Julie Hager ([jhager@montana.edu](mailto:jhager@montana.edu)).

## Goodbye and Good Luck to Dr. Rodney Kott

After more than 33 years of service, Rodney Kott is retiring as Montana's Extension Sheep Specialist. He was recently honored by the Wool Growers on September 11<sup>th</sup>, in Miles City, with a lamb dinner being served to a crowd of approximately 225 people. Following the meal, Rodney was "roasted" by many former students, grad students, and producers.

Over the years, Rodney established such a strong program, that he is not only recognized by the people of Montana, but also at the National and International level. Rodney promoted genetic recordkeeping on the MSU sheep, and encouraged the use of LambPlan by producers in Montana. His research in nutrition and increased baby lamb survival is also noteworthy. Rodney coordinated the use of sheep and targeted grazing to diminish leafy spurge and other weed populations. He also helped revamp the method for selling wool by shipping graded wool collected by six different wool pools to a site where the wool was consolidated. This process broadened the market for Montana wool, and increased the amount per pound received. Because of further marketing efforts, there are products such as woolen socks, and fine-wool undergarments which feature Montana wools exclusively.



On Thursday, September 26<sup>th</sup>, Rodney was the guest of honor at the agriculture retirees' coffee. This was well attended by retirees, faculty and staff, students, and others. Rodney and Sharon will reside near Fredricksburg, Texas. The Kott's will be returning to Montana for regular visits, since their two grandchildren now live in Drummond, where their son Bryan is the Superintendent of Schools. Their daughter, Lisa is continuing her education in nursing at the University of Texas in Austin.

Congratulations on a job well done, Rodney!

## Upcoming Dates

October 4-5, 2013	MSU Homecoming Weekend
October 9-10, 2013	Animal & Range Sciences Department External Review
October 18, 2013	MSU Friday
October 25-26, 2013	Celebrate Agriculture! (Parent/Family weekend at MSU)
November 11, 2013	Veteran's Day Holiday (no classes, offices closed)
November 27-29, 2013	Thanksgiving Holiday (no classes, offices closed November 28-29)
December 9-13, 2013	Final Exams
December 13, 2013	Fall Semester Ends
December 14, 2013	Fall Commencement
January 8, 2014	Spring Semester 2014 Begins
January 20, 2014	Martin Luther King Holiday (no classes, offices closed)

## Outside Classrooms on Campus

When the architectural plans were being developed for the Animal Bioscience Building the Mandeville Creek Restoration Working Group recommended that landscaping on the Mandeville Creek side of the building be accomplished with native species. A self-sustaining landscape would blend better with the design theme for the new building; restore a degraded urban stream and lower “lawn-care” costs over the ensuing decades. As construction proceeded it became necessary to move Mandeville Creek further west to accommodate the building’s foundation. This move expanded the opportunity for more



*Dr. Bok Sowell with his NRSM 102 class.*

native landscaping because the new channel and exposed banks would have to be revegetated. During the early planning phases Range Science faculty proposed that the landscaping include native shrubs and trees that could be incorporated into plant identification, riparian and wildlife habitat teaching laboratories. With approval from campus planning Range Science faculty and undergraduate students grew bebb, geyer and booth willow from cuttings obtained along the portion of Rocky Creek flowing through the Ft. Ellis Station. The material was rooted in the MSU Plant Growth center and then out-planted to the restored Mandeville channel in June 2010. Aspen, narrow-leaf cottonwood and redosier dogwood were obtained from local nurseries to complete the native landscaping.



*Dr. Bok Sowell and class*

The first step in the Mandeville Creek restoration was the re-contouring of the channel and stream bed to approximate channel morphology and grades found in streams outside the urban corridor. Gravel and small cobble were added to the stream bed to encourage colonization by caddis, may and stonefly nymphs (benthic macroinvertebrates). Undergraduates in Riparian Ecology and Management (NRSM 455) began tracking macroinvertebrate recolonization of the reconstructed channel in April 2011. By spring 2013 willow, cottonwood and redosier dogwood growth had exceeded expectations but invasive species like reed canarygrass and Canada thistle were encroaching into the restored area. Herbicidal control was unacceptable because of potential negative impacts to both the native woody species and water quality.



*Sheep on campus*



*Sheep grazing outside the Animal Bioscience Building*

To bring the weeds under control while protecting riparian woody species and water quality we fenced half of the Mandeville Creek restoration area and introduced 20hd of rambouillet wethers. After one week weeds had been reduced by 30 to 70% but the wethers were beginning to browse the willows and cottonwoods. The yearlings were returned to Ft. Ellis and in September 2013 students in WILD 355 (Livestock and Wildlife Habitat Improvement) measured the browsing impact to the riparian woodies

inside the grazed area using techniques commonly employed by state and federal personnel on refuges and grazing allotments. In spring semester 2014 NRSM 455 will continue tracking macroinvertebrate colonization and measure willow and cottonwood recovery from the previous summer’s grazing. With continuing support from campus administration we will graze the previously protected portion of Mandeville Creek (2014) providing both weed control and continued demonstration of field monitoring procedures for Animal and Natural Resource Science majors. With ever increasing travel costs the Mandeville Creek restoration project coupled with targeted livestock grazing for weed control has created an excellent alternative resource for introducing MSU students to a number of ecological and livestock monitoring methodologies.



*Dr. Clayton Marlow's WILD 355 class.*

## Current News: Recruiting for four new positions



The Animal and Range Sciences Department at Montana State University is growing, and currently has searches in progress for one Non-Tenure Track Faculty Position and three Tenure Track Faculty positions. These positions are:

### **Non-Tenure Track Faculty Position –Instructor**

The vacancy announcement can be found at: <http://www.montana.edu/jobs/nttfaculty/14-034>.

### **Extension Beef Cattle Specialist (Assistant Professor of Beef Production)**

The vacancy announcement can be found at: <http://www.montana.edu/jobs/faculty/14-073>.

### **Wildlife Habitat Ecologist (Assistant Professor)**

The vacancy announcement can be found at: <http://www.montana.edu/jobs/faculty/14-061>.

### **Extension Forage Specialist (Assistant Professor)**

The vacancy announcement can be found at: <http://www.montana.edu/jobs/faculty/14-055>.

If you have further questions please contact the Animal and Range Sciences Department at 406-994-3721 or Susan Cooper at [scooper@montana.edu](mailto:scooper@montana.edu).

## 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:

Kevin Brown  
Director of Development  
MSU - College of Agriculture  
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Bozeman, MT 59717  
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[www.animalrange.montana.edu](http://www.animalrange.montana.edu)  
Newsletter edited and compiled by Susan Cooper



*Animal Bioscience Building*