

ANIMAL & RANGE SCIENCES NEWSLETTER

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August 2012

Introduction from Dr. Glenn Duff, Department Head



It is hard to believe the summer is almost gone and the semester has started. Animal and Range Sciences has had several triumphs as well as a sad event in the passing of one of our own.

We are sad to report that Anita Gray passed away on July 10, 2012. Anita was an Administrative Associate in our department working with Extension Specialists. Anita will be sorely missed and please keep her family in your thoughts during this time.

In other news, Dr. John Paterson has retired as Beef Extension Specialist. John came to Montana State University as department head in 1994. Dr. Paterson's contributions to the livestock industry in Montana are without question second to none. Dr. Paterson's new position is with the National Cattlemen's Beef Association (NCBA) as Educational Director. Thank you John for everything you have done for Montana State University and the livestock industry.

In this issue, we welcome our new Geneticist, Dr. Jennifer Thomson and our new Ruminant/Gastrointestinal Microbiologist Dr. Carl Yeoman. Jennifer started in July and Carl started in August. Please stop by and welcome these new faculty members.

Our department faculty and staff went on our second annual "Bringing MSU to You" tour in May. For the event this year, we traveled to North Central Montana with stops in Great Falls, Havre, Chinook, Malta and Lewistown. At the final stop, we also met up with the Animal and Range Science Advisory Committee. Again, this event gives Animal and Range Science faculty an opportunity to get out and put a face with our department. We were fortunate that all our new faculty (Carr, Thomson, and Yeoman) were able to join us on the trip this year.

Our faculty continues to be recognized by their peers for outstanding contributions. At the National and Western Section American Society of Animal Sciences meeting in Phoenix in July, Dr. John Paterson received an American Society of Animal Sciences Fellow award, Dr. Jim Berardinelli received the Western Section American Society of Animal Science (WSASAS) Distinguished Teacher Award and Dr. Rachel Endecott received the WSASAS Extension Award. These awards recognize all of the contributions that these individuals have done for their professional societies.

As I prepared this introduction, I continue to be amazed at everything that is being accomplished by our program. Other items in the newsletter highlight teaching research, and Extension programs. There is never a dull moment around here.

Inside this issue:

Awards, Publications & Presentations	2-3	Cleaning up the Fort Ellis Research Farm	7
Wool Council Meeting	3	Goodbye to Dr. John Paterson	8
Welcome New Faculty	4	Recent Events Held in the Animal Bioscience Bldg.	8
"Bringing MSU to You"	5	Other News	9
Where Has Glenn Been?	6	Farewell to Anita Gray	10
Teaching News	6	Like us on FaceBook	10
Student News & Upcoming Dates	7	Congratulations and Welcome Back Lisa White	10

Awards, Publications & Presentations

Greg Johnson is a member of a multi-institutional four year project recently funded by the Howard Hughes Medical Institution. Institutions include Carroll College, Chief Dull Knife College, Aaniiih Nakoda (formerly Fort Belknap College), and Little Big Horn College, representing diverse cultures, resources and scientific interests. The major emphasis of the project is to train undergraduate students in the scientific process using vector-transmitted, infectious disease ecology as a research model. Students will have the opportunity to choose training in spatial, molecular, and/or bioinformatic analysis for the purpose of investigating the distribution of an infectious disease, hosts and vectors. The HHMI grant expands beyond the current project 'Spatial Epidemiology of West Nile Virus Infection Risk' funded by the MSU INBRE Program (IDeA Networks of Biomedical Research Excellence) through the NIH.

Jim Berardinelli received the Distinguished Teacher Award at the Western Section American Society of Animal Science Convention held in Phoenix, AZ on July 15-19, 2012.

Rachel Endecott received the Extension Award at the Western Section American Society of Animal Science Convention held in Phoenix, AZ on July 15-19, 2012.

Shannon Moreaux was awarded \$56,000 on a recent grant proposal funded by the Bair Ranch Foundation. The title of this research proposal is "The effects of psyllim treatment on serum metabolite concentrations and morphologic characteristics in grass grazed horses."

John Paterson received the award of Fellow of the American Society of Animal Science—Extension Category. John received his award at the 104th Annual Meeting of the American Society of Animal Science, July 16, 2012, in Phoenix, AZ.

Rodney Kott and **Lisa Surber** are coPI's on a grant with the University of Wyoming to develop genetic selection tools to improve sheep efficiency which could help producer profitability.

New publication: Henderson, S.L., T.K. Mosley, J.C. **Mosley** and **R.W. Kott**. 2012. Spotted knapweed utilization by sequential cattle and sheep grazing. *Rangeland Ecol. Manag.* 65(3):286-291.

New publication: Waterman, R.C., T.W. Geary, **J.A. Paterson** and R.J. Lipsey. 2012. Early weaning in Northern Great Plains beef cattle production systems: I. Performance and reproductive response in range beef cows. *Livestock Science* 148 (2012) 26-35.

New publication: Waterman, R.C., T.W. Geary, **J.A. Paterson** and R.J. Lipsey. 2012. Early weaning in Northern Great Plains beef cattle production systems: II. Development of replacement heifers weaned at 80 or 215 d of age. *Livestock Science* 148 (2012) 36-45.

New publication: **Carr, Craig A.**, and William C. Krueger. 2012. The role of the seed bank in recovery of understory species in an eastern Oregon ponderosa pine forest. *Northwest Science* 86(3):168-178.

New publication: **Frisina, M.R.** 2012. Argali Management Triad. *Wild Sheep Summer 2012*. Wild Sheep Foundation, Cody WY.

New publication: Yeoman, C.J, Chia, N., Jeraldo, P., Sipos, M., Goldenfeld, N.D. and White, B.A. 2012. The microbiome of the chicken gastrointestinal tract. *Amin Health Res Rev* 13(1):89-99.

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Several Animal & Range Sciences faculty and students gave talks at the recent National and Western Section American Society of Animal Sciences meeting in Phoenix in July.

Jim Berardinelli "Oviductal protein and ovarian hormone concentrations during the first five days of the estrous cycle in first and third estrous ewe lambs and mature ewes."

Glenn Duff chaired and gave introductions to the session titled "Ruminant Stress: Implications on Health and Performance of Ruminants."

Bret Olson "An evaluation of cold stress on ruminant nutritional requirements."

Chris Hooley "Effects of dietary protein and lipid levels on growth and stress tolerance of juvenile tilapia (*Oreochromis niloticus*)."

John Paterson "Significant research accomplishments applicable to arid environments."

Awards, Publications & Presentations (continued)

Animal & Range Sciences faculty and student presentations at the recent National and Western Section American Society of Animal Sciences meeting in Phoenix in July.

William (Billy) Whitehurst “Comparison of chelated versus inorganic trace minerals on rate and efficiency of gain and pregnancy rates in beef heifers.”

Elizabeth Read “The effect of dietary levels of copper and zinc on rate and efficiency of growth by rainbow trout.”

Devon Ragen “Individual mineral supplement intake by ewes swath grazing or confinement fed pea-barley forage.”

Erin Nix “Effect of swath grazing on forage intake and wastage by ewes.”

Rachel Endecott “Enterprise level implications of heifer development.”

Blake Hauptman “Evaluation of the ability of grain distillers dried yeast to replace fish meal in the diets of juvenile rainbow trout *Oncorhynchus mykiss*.”

Kate Sharon “Effects of timing of vaccination (day 0 versus day 14 of a receiving period) with a modified-live respiratory viral vaccine on performance, feed intake and febrile response of beef heifers.”

Rachel Endecott presented a poster at this conference titled “Postweaning feed restriction effects on steer feedlot performance and carcass characteristics.”

MSU's AQ Team and student presenters at 2012 JAM Conference in Phoenix, AZ. Right to left (front row): Medora Lachman, Erin Nix, and Whitney Carr. Right to left (back row): Devon Ragen, Jeffrey Swartz, Andrew Williams and William Sparks.



American Sheep Industry Assoc. Wool Council Mtg./Military Educational Session



Group taking tour of the Ft. Ellis Research Farm.

On July 11-13, the Montana Wool Lab and Montana Wool Growers Association hosted the American Wool Council, a division of the national organization, the American Sheep Industry (ASI).

Other guests included members of the military, representing the Marines, the Army and Special Forces. Their fact-finding mission included some educational information on wool in general and, more specifically, the wool produced in Montana.

The military is interested in expanding their use of wool because of its comfort and its flame resistant and antimicrobial properties.

See Billings Gazette article: http://billingsgazette.com/news/state-and-regional/montana/wool-promoted-as-combat-ready/article_7d663075-f885-53c1-9039-ab111f5b50a7.html



MSU's President Cruzado addresses the Wool Council and guests at the Montana Wool Lab, one of just three university wool labs in the US.

WELCOME NEW FACULTY: Dr. Jennifer Thomson, Dr. Carl Yeoman and Dr. Craig Carr

Dr. Jennifer Thomson is our new Assistant Professor of Genetics. Jennifer was born in Oregon and was raised on a family farm. She got her B.S. degree in animal science from Oregon State University in 2001 and continued to finish a MS degree in Animal Nutrition also at Oregon State University in 2003. Jennifer then moved north and earned her PhD degree in 2006 at Washington State University studying the expression of genes in the adipose tissue of pregnant and lactating Holstein dairy cattle. After earning her PhD she moved to the east coast and did a post-doctoral research project working for the University of Maryland and the USDA Bovine Genomics Laboratory integrating gene expression and metabolism in growing beef cattle receiving specific nutrients via abomasal infusion. In 2008, Dr. Thomson moved to Alberta to join the Alberta Bovine Genomics Group at the University of Alberta. During her time there, she worked on identifying candidate genetic markers for residual feed intake in growing beef cattle, and resistance to BSE and fertility traits in dairy cattle. She helped to identify metabolite blood markers related to residual feed intake. She participated in the whole genome sequencing of an Angus and Holstein bull, which allowed the identification of SNP markers and copy number variant regions in the cattle genome. She has also been involved with whole transcriptome sequencing and analysis of a number of tissues that will be used to improve the annotation of the bovine genome. Her overall research goals include identifying genetic markers and gene expression patterns that can be used in animal breeding decisions to make genetic improvement in economically important traits in livestock. This fall Jennifer will be teaching Principles of Animal Breeding and Genetics. Jennifer can be reached by Email at: jennifer.thomson@montana.edu or by phone at 406-994-7434.



Dr. Carl J. Yeoman is joining us from the Institute for Genomic Biology at the University of Illinois Urbana-Champaign, where he was a postdoctoral research fellow. Carl is our new Assistant Professor of Rumen/Gastrointestinal Microbiology. He studies ecological and evolutionary dynamics of host-associated microbial ecosystems and genomes. He earned his Ph.D. at the Massey University in New Zealand investigating the genomes of fibrolytic, proteolytic and methanogenic rumen microbes and their symbiotic interactions. He has been recognized by the Faculty of 1000 for his published work on *Gardnerella vaginalis* as being in the top 2% of biomedical research articles. Carl will apply his expertise to the gastrointestinal and vaginal ecosystems of livestock, looking to improve productivity and reproductive success, while minimizing environmental impacts. He will also teach this fall in our Advanced Ruminant Nutrition course. Carl can be reached by Email at: carl.yeoman@montana.edu or by phone at 406-994-7440.

Dr. Craig Carr was introduced in our January 2012 newsletter (<http://animalrange.montana.edu/documents/Newsletters/January2012.pdf>) Craig is our new Assistant Professor of Rangeland Ecology. And will be teaching Vegetation of Western Wildlands and Biomes of Western Wildlands. Craig can be reach by Email at: craig.carr@montana.edu or by phone at 406-994-3282.



“Bringing MSU to You” Animal & Range Sciences Department Tour of Montana Hi-Line (May 14-16, 2012)

Faculty and staff from the Animal and Range Sciences Department traveled with the second annual “Bringing MSU to You” tour to the Montana Hi-Line. This annual tour is geared to put a face to our department by bringing faculty and staff to different areas around Montana to meet with the general public, interact with producers and meet potential MSU students and their families.



Public forum in Great Falls.

Participants in this year’s tour included: Glenn and Donna Duff, Craig Carr, Susan Cooper, Mike Frisina, Julie Hager, Pat Hatfield, Peggy Kelley, Jim Knight, Clayton Marlow, Bok Sowell, Denise Thompson, Jennifer Thomson and Carl Yeoman.



Advisory Committee Dinner/Meeting in Lewistown.

On this year’s tour faculty and staff meet professionals in the ag community including personnel from Cascade County Extension (Great Falls), Northern Ag Research Center (NARC) (Havre), Blaine County Extension (Chinook) Phillips County Extension (Malta) and Fergus County Extension (Lewistown). Public forums in these locations also made it possible to develop relationships with potential students, parents and producers.

A highlight of this trip was a barbeque and tour of the NARC facility which still has several of the historical building from when it was Fort Assiniboine (built in 1879). Our special thanks go out to Darrin Boss and his gang for being such wonderful hosts!

The tour ended in a dinner meeting in Lewistown with the Animal & Range Sciences Department Advisory Committee and Darren Crawford, Fergus Co. Extension Agent. Next morning it was back to Bozeman.

Our special thanks go out to all the County Extension personnel that helped make this trip so successful.



NARC facility tour



Left...old NARC office. Right....new NARC office/labs.



Where Has Glenn Been?

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

May 2012:

Bringing MSU to You tour of Montana Hi-Line region (Great Falls, Havre, Chinook, Malta and Lewistown).

June 2012:

Stockgrower's Midyear Convention (Great Falls, MT)
Farm Bureau Summer Conference (Fairmont Hot Springs)
LEAD 21 Workshop (Indianapolis, IN)

July 2012:

2012 National and Western Section American Society of Animal Sciences Joint Meeting (Phoenix, AZ)



Teaching News

On June 25, 2012, Bok Sowell, Professor of Range Science in the Department of Animal and Range Sciences and ten other professors from MSU visited the Jack Creek Preserve located between Ennis and Big Sky to discuss the use of this area for classes. The Jack Creek Preserve was started by Jon Fossel, who is the co-chairman of the Preserve's Foundation. The purpose of the Preserve is to provide an outdoor education for students from elementary through college. Currently, 55 younger students attend summer camps hosted at the preserve each year, where they learn about the outdoors.

Since the demand has exceeded facilities, Fossel has started seeking funds to build a research and education facility that could be used by wildlife and natural resource researchers and managers. The new structure is designed to house 50 students and 6 instructors on the 4800 acre preserve.

Ecology professor Robert Garrot spearheaded the effort by Montana State University teachers and researchers to make use of this preserve to increase the "hands on" component of the teaching programs at Montana State University, and organized the tour. Bok noted the wide variety of ecological teaching and research opportunities for our undergraduate and graduate students on the preserve. Other members from our department, such as Range Science professor Bret Olson, are also slated to attend another tour to explore ways to incorporate the preserve into classes in the Natural Resource Ecology and Management major within our department.

For more information on the Jack Creek Preserve Foundation, visit their website at: <http://www.jackcreekpreserve.org>.

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It was recently announced by the Dean of the College of Ag and the Animal & Range Sciences Department Head that permanent funding has been provided to add 8 credit hours of new course work to the equine science option. The Equine Curriculum Committee will be meeting soon to determine what new equine subjects would provide the greatest value to the students in the equine option. The committee welcomes comments from current, previous and potential equine science students and industry professionals.

Student News

Four students from the Department of Animal & Range Sciences recently competed as a team in the Western Region Academic Quadrathlon, held in Phoenix, AZ. The contest was held in conjunction with the recent National and Western Section American Society of Animal Sciences meeting.



Whitney Carr of Chugiak, AK William Sparks of Plevna, Andrew Williams from Murphys, CA and Jeffrey Swartz of Bozeman made up the team that competed in a four-part contest that consisted of a comprehensive written exam, impromptu oral presentation, hands-on lab practicum and double-elimination quiz bowl tournament. The MSU team finished second in the lab practicum and third in the quiz bowl, completing against Colorado State University, New Mexico State University, Oregon State University, Utah State University and the University of Wyoming. We look forward to seeing next years team.

Upcoming Dates

August 27, 2012	MSU Classes begin
September 3, 2012	Labor Day Holiday (no classes, offices closed)
September 13, 2012	Ram Sale (Miles City, MT)
November 6, 2012	Election Day (no classes, offices closed)
November 21-23, 2012	Thanksgiving Day Holiday (no classes)

Cleaning up the Fort Ellis Research Farm



Devon and Bella

Devon Ragen, research associate, Animal & Range Sciences, has been managing and working on a large clean up of the Fort Ellis Research Farm. The clean up includes several hours of cleaning out barns, fixing fence, painting, mowing fields, removing several truck loads of recyclable scrap metal, and much more. Helping with this big clean up project are local high school students Christopher Brekke and Cody Cooper. Also keeping them company were Tucker the dog and Bella the lamb.



Chris Brekke, Cody Cooper, Devon Ragen and Tucker



Left to right: 1) Chris mowing canola, 2) Clean barns, 3) Devon and Bella with Chris and Cody and another load of scrap metal 4) Cleaned up barns and pasture.



Goodbye and Good Luck to Dr. John Paterson



Dr. John Paterson has retired from Extension and the Department of Animal & Range Sciences and has taken the position as Executive Director (Producer Education) for the National Cattlemen's Beef Association (NCBA). John has been a Beef Extension Specialist and Professor of Animal Science at MSU since 1996. John has served the Western Section American Society of Animal Science (WSASAS) serving as Secretary-Treasurer, President-Elect and President. John is a member of the American Society of Animal Science, ARPAS, Montana Stockgrowers Association and NCBA. Dr. Paterson has received the Gamma Sigma Delta Junior Faculty Research Award (1984), ESCOP Leadership Intern (1991), Farmland Industries Distinguished Service Award (1993), Epsilon Sigma Phi State Visionary Leadership Award (2001), Montana State University Dean of Extension Director's Award for Excellence (2001), WSASAS Extension Award (2003), American Society of Animal Science Extension Award (2004), Distinguished service award for WSASAS in 2011 and most recently with the award of Fellow of the American Society of Animal Science—Extension Category (2012). Dr. Paterson was instrumental

in formation of the Montana Beef Network (MBN). The purpose of this program is to provide a systems approach to raising feeder calves; Beef Quality Assurance training and a supply chain management approach to the beef industry for the ranch, feedlot and packing plant. Other Extension activities include weaning strategies to reduce morbidity of feeder cattle, a Beef: Questions and Answers Newsletter, and gate to plate programs. Dr. Paterson is a popular speaker for producer and industry programs focusing on winter nutrition, trace mineral nutrition, cow management, and computer ration formulation. In addition to his Extension responsibilities, Dr. Paterson has an active research program. John has trained 12 Ph.D. and 18 M.S. and currently has 6 M.S. students and 1 PhD candidate. In addition, John has mentored 3 post-doctorate research associates. During his career, John has authored or co-authored over 80 peer-reviewed manuscripts. Dr. Paterson has received close to \$9.5 million in extramural support. John and his wife Diana have three children, Cameron, Terrill, and Courtney.

Recent Events Held in the Animal Bioscience Building

April 12-13, 2012, Academic Quadrathlon. The Academic Quadrathlon contest returned to MSU Animal & Range Sciences Department in 2012. This 4-part animal science contest consisted of an oral presentation, a written exam, a hands-on lab practicum and a double-elimination quiz bowl tournament.

April 17, 2012, Montana Board of Regent's Budget Mtg.

May 2, 2012, Faculty Mtg. with Nature Conservancy

May 2, 2012, Leadership Bozeman Ag Day. Leadership Bozeman was created by the Bozeman Area Chamber of Commerce in 1987 to develop informed, vigorous, skilled and effective leaders for involvement in all facets of the community, public and private.

May 4, 2012, COA MSU Alumni Classes of 1942, 1952 and 1962.

COA MSU Alumni Class members came back to campus and were honored at the 2012 Graduation ceremony.

May 8-10, 2012, HACCP Training

May 30, 2012, Equine Boosters Mtg.

June 6, 2012, Big Sky Conference Presidents' Mtg.

July 11-12, 2012, American Sheep Industry Assoc. Wool Council Mtg./ Military Educational Session.

July 12, 2012, 4H Congress



Other News

Our friend and colleague, Mary (Mo) Harbac has moved on from the Animal & Range Sciences Department after working as a Research Associate since 2006. Mo continues to work at MSU with the Army ROTC. The entire department wishes Mo good luck.



Craig Carr and Bok Sowell began filming a series of videos on Montana Rangelands this summer. The two range ecologists were awarded a modest grant from the Instructional Innovation Grants which are administered by the Teaching-Learning Committee of Montana State University, Bozeman. The videos will feature 60 of the most common range plants in Montana. These will include 20 grasses, 20 forbs and 20 shrubs. Other videos will feature eight ecological sites and identify in characteristics. The videos are designed to provide complementary information for Range Plants classes taught in the Department of Animal & Range Sciences. However, the videos will be posted on YouTube or Vimeo so anyone in the state can view them. The videos should be completed by the end of this summer. We will let everyone know the link to these videos when they are posted.

Glenn Duff recently attended LEAD21 training in Indianapolis, IN. LEAD21 is intended to meet the future needs for leadership development of faculty, specialists, program and team leaders, research station and center directors, district and regional directors, department heads and chairs, and others in land grant universities' colleges of agricultural, environmental, and human sciences and USDA/NIFA. The primary purpose of LEAD21 is to develop leaders in land grant institutions and their strategic partners who link research, academics, and extension in order to lead more effectively in an increasingly complex environment, either in their current position or as they aspire to other positions.



Craig Carr was invited to teach a one day range management course put on at Little Big Horn College on May 31. The pictures are of the field component where students learned how to evaluate forage production and calculate appropriate stocking rates. Students ranged in age from early 20's right up through to early 70's all of whom desired to learn more about the interactions of grazing animals and vegetation and how to incorporate this knowledge into the management of rangelands. Half the day in the class room talking about

plant morphology and physiology in relation to grazing, learning how to calculate stocking rates, and discussed rationale and methods for rangeland monitoring and the second half of the day was spent in the field. One picture shows a group of students clipping vegetation, and the other picture shows a group of students crunching their numbers to determine appropriate stocking rate.



We would like to welcome one of our faculty members, Dr. Rachel Endecott, to Bozeman! Rachel is an Associate Professor of Animal Science and Extension Beef Cattle Specialist. Rachel has moved from Miles City to join us in the Animal Bioscience Building at Montana State University in Bozeman. Rachel is located in room 219 and can be reached by Email at: rachel.endecott@montana.edu or by phone at 406-994-3747.

Farewell to One of Our Family

It is with great sadness that we had to say goodbye to our friend and colleague, Anita Gray. Anita died on July 10, 2012 after a very courageous battle with cancer. Anita had been with the Animal & Range Sciences Department, as an Extension Administrative Associate, since 2000. Anyone that knew Anita will understand when we say we will truly miss her bright smile and wonderful sense of humor.



Like Us on FaceBook



Like us on FaceBook at: <http://www.facebook.com/#!/MSU.Animal.Range.Sciences>.

Congratulations Lisa White



We would like to welcome Lisa White, Animal & Range Sciences Department Accountant, back to work after the birth of her son. Declan Ryan White was born on May 9, 2012. Everyone in the department sends their congratulations to Lisa and her husband Ryan!

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.

