

ANIMAL & RANGE SCIENCES NEWSLETTER

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Introduction from Dr. Glenn Duff, Department Head



I can't believe it has already been a year at my new position. I certainly have had a steep learning curve on the ins and outs of Montana State University, as well as the State of Montana and what is happening in the department. We continue to have the best Animal and Range Science Department in the West and are building on our successes.

We have been talking about new positions and it has now come to fruition. Search committees have been formed and we will soon be scheduling interviews for candidates for the positions. The positions that we are recruiting include a quantitative or physiological geneticist, a ruminal and/or gastrointestinal microbiologist, and a plant ecologist. All three candidates will work in the area of "improving grazing management" focus that was identified by Animal and Range Science faculty as a focus area needed for the state. We will post the interview schedules on our website and if you have a chance to participate in the interviews, we would appreciate your input.

As usual, we are highlighting the latest news from our department in this newsletter. It is amazing how much we have going on at any one time. It is a tribute to the efforts of our faculty that one of our own was awarded the Western Section American Society of Animal Science Distinguished Service award. This is the highest recognition that the sections gives each year. Dr. John Paterson was the recipient this year and please congratulate John when you get a chance.

I continue to try to get out and meet as many of you as possible. We did take a departmental tour of southeastern Montana this year and look forward to getting out to other parts of the state in the future. I have also visited several producers in the state and look forward to getting out more this fall.

One item that we would like to include in this newsletter in the future is updates on what is happening with departmental alumni. We will start trying to contact alumni and include this information in future correspondence. If you are alumni and would like to contact us, please contact myself at glenn.duff@montana.edu or Susan Cooper at scooper@montana.edu.

Please stop by and see us if you are in Bozeman. All of you are why we are what we are.

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Awards, Publications & Presentations

New publication: Keigley, R.B. and **M.R. Frisina**. 2011. Process to Monitor and Manage Ungulate Browsing Pressure. *Natural Resources and Environmental Issues*: Vol.16, Article 29. <http://digitalcommons.usu.edu/nrei/vol16/iss1/29>.

New publication: Thompson, W.H., P.L. Hansen, and **M.R. Frisina**. 2011. Landscape Level Habitat Survey of Mule Deer Winter Range in Eastern Montana. *Natural Resources and Environmental Issues*: Vol.16, Article 2. <http://digitalcommons.usu.edu/nrei/vol16/iss1/28>.



John Paterson (left) receives the Distinguished Service Award from Denny Crews, president of WSASAS.

John Paterson received the Western Section American Society of Animal Science (WSASAS) Distinguished Service Award at the WSASAS meeting in Miles City, MT. The award is the highest award that Western Section gives and is in recognition for John's service to the beef industry. Congratulations John!



Tess Norvell

At the recent WSASAS meeting, two of Dr. John Paterson's graduate students were selected to give oral presentations on their research.

Tess Norvell, originally from Colorado, presented on "The Effects of Supplemental magnesium on Mineral Consumption and Feeding Behavior by Primiparous Beef Heifers." Tess completed her studies and graduated in May. She is employed by the USDA and is working in Amarillo, TX..

Liz Read, originally from UTAH, gave a presentation on "Comparison of Protein Source and Copper Source on Bioavailability in Rainbow Trout". Liz spent the summer working at Fort Keogh working for Dr. Mark Petersen on a water sampling project.



Liz Read

Rachel Endecott also presented a paper at the WSASAS meeting. Rachel presented "Feedlot Performance and Carcass Characteristics of Calves from Dams with Different Levels of Winter Supplementation Developed With or Without Feed Restriction During the Postweaning Period." Authors are R.L. Endecott, B.L. Shipp, M.D. MacNeil, L.J. Alexander and A.J. Roberts. All co-authors are with the USDA-ARS at Fort Keogh in Miles City, MT.

Where Has Glenn Been??

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

April 2011:

Collegiate Cattle Growers (Tucson, AZ)

May 2011:

Tour of Eastern Montana (Billings, Miles City, Broadus, Ekalaka, and Baker)

June 2011:

Western Section American Society of Animal Science Mtg. (Miles City, MT)

Woolgrowers Campout (Norris, MT)

Northern Ag Research Center Field Day (Havre, MT)

Western Triangle Ag Research Center Field day (Conrad, MT)

July 2011:

Central Ag Research Center Field Day (Moccasin, MT)

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

Prickly Pear Ranch (Helena, MT)



Administrative Team Highlight: Evelyn Norman and Sara Lawson

If you have ever called or stopped by the Animal and Range Sciences Department's Main Office you may have had the pleasure of talking to Evelyn or Sara. Both Evelyn and Sara are student employees of our Department and are part of our Administrative Team. We appreciate their hard work and friendly smiles that they bring to their jobs everyday. It is truly a pleasure working with these two MSU students.



A little bit about Evelyn:

I grew up in the small town of "Anza" in Southern CA. My family and I moved to Bozeman, MT about 5 years so my siblings and I could attend MSU. I was homeschooled all the way through high school and began college at MSU in the Fall of 2006. I am currently in my fifth year studying Music, Business Management and a minor in Spanish. I have been playing the violin for about 8 years and am currently studying under Angella Ahn from the Ahn trio and plan to complete my music degree this coming year. I enjoy many styles of music such as classical and Irish but I especially enjoy worshipping and improvising. During my time at

MSU, I had the incredible opportunity to go to South East Asia with the MSU Symphony Orchestra in the Summer of 2009. Our trip consisted of one week in Vietnam, one week in Thailand and another in Singapore. It was a very memorable trip because we had the privilege of playing with a variety of universities and people. We were able to see so many beautiful and unforgettable places and make some new friends.

I began working in the Animal and Range Department in January of 2008. I have learned so much while working here and have enjoyed the many new experiences I have had over the years. Whenever I tell people that I work for the Animal and Range Sciences Department, I usually get a confused look because my degree is unrelated to animal and range sciences but I find that working here is such a fun contrast from the music and business world. I am so thankful for my job and for the people that I work with at the Animal and Range Sciences Dept.

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A little bit about Sara:

I am from Melstone, MT, and I chose to attend MSU because of the agriculture program that it offered. I will be starting my sophomore year, here at MSU, this coming fall. I chose Ag Business as my first major because I love business, math, and agriculture, so there couldn't be a better way to mix the three together. Recently, I have decided to double major with a Marketing degree. After graduation from college, I plan on starting a career as a loan officer with a farm service agency.

Some of the things I am involved with in college include the MSU Polo Club and Ag Ambassadors. I also participate in Service Saturdays and volunteer at Eagle Mount Equestrian Center. This past spring, I had the opportunity to volunteer with riders who were competing in the Montana Special Olympics Equestrian State Games.

For recreation I enjoy working with my horses, Snickers and Teton, and hiking with my dog, Trigger. I also enjoy boating and water skiing in the summer, and skiing at Bridger Bowl in the winter. This summer, I started playing Cowboy Polo for the Gallatin Cowboy Polo Team. We travel to different tournaments throughout the summer, and compete with other teams from around the state. I play on my 11-year-old horse, Snickers, who seems to enjoy the sport just as much as I do!

I started working in the Animal and Range Sciences Department in the fall of 2010. The best part about working in the main office is meeting and working with all of the wonderful people, and my favorite task is making PowerPoint presentations for different events or displays.



Montana Wool Grower Camp Out at Red Bluff Research Ranch (Norris, MT)



Montana State University hosted the annual Montana Wool Growers Campout on June 24-26 at the Red Bluff Research Ranch located near Norris, Montana. The Tobacco Root Mountains provided a scenic backdrop and the weather was very mild with NO wind! It was the greenest year we have seen at Red Bluff. The camp site was at the Owen's place on the ranch.

Dr. Rodney Kott provided a guided tour of the Red Bluff Ranch and an update on MSU's sheep program. Red Bluff is located along the west side of the Madison River. The ranch occupies most of the once thriving late 19th-early 20th century gold mining community, which at its peak of activity, may have had a population of approximately 3,000. Red Bluff

(previously known as the Rowe Brothers Ranch) was purchased for \$164,000 (\$16.83 per acre). The total acreage was 9,746. There are approximately 170 head of cattle and 900 head of Rambouillet, Targhee, and Columbia sheep maintained on a year-round basis. Rodney summarized 30 years of sheep research conducted by Dr. Van Horn and Dr. Thomas. This research has been instrumental in providing winter supplementation and lamb survival recommendations to Montana sheep producers for many years.



Saturday featured two wonderful barbequed lamb meals from our chef, Dave McEwan. There was no shortage of food! The campout was certainly a great gathering of friends. MSU Animal and Range Sciences, Rodney and Lisa thank all who attended.



All in a Day's Work!



Moving sheep recently at Ft. Ellis not only included student workers, but faculty also helped out. Pictured left to right: 1) Megan Scherting (MSU Student), Glenn Duff (Animal & Range Sciences Dept. Head), Pat Hatfield (Professor, Animal & Range Sciences) 2) Pat, Glenn and Bob Brekke (College of Ag, Animal Operations Mgr.) 3) Megan and Jillian Hatfield (MSU Student) working hard and 4) Pat moving sheep.



MSU Youth Horsemanship School 2011

The Youth Horsemanship School from June 27-July 1 at MSU's Miller Pavilion was another overwhelming success – for students, student interns and chaperones alike. The annual summer event is put on by MSU Extension Equine Specialist, Dr. Shannon Moreaux, MSU Equitation Manager, Andi Shockley and Julie Hager from Animal and Range Sciences. This year, 49 young equine enthusiasts from all over Montana and as far away as Washington State attended. Students participated in 2 riding sessions and 2 equine educational workshops each day, covering a variety of topics including horse packing, anatomy, nutrition, trail riding, team penning and more. Students also enjoyed evening activities such as goat roping, timed event riding games, a packer's scramble, and a campfire night.



MSU student Amy Prechter works closely with Breanne Pino, from Livingston, MT, during a riding lesson.

This year, the Youth Horsemanship School relied on the talents of several MSU Equine Science students as instructors. Jenn Matelski (Ann Arbor, MI), Jana Duty (Whitefish, MT), Nicole Gray (Highwood, MT), Allison Kraft (Deer Lodge, MT), Haleigh Lichtenberg (Apple Valley, CA), Amy Prechter (Grass Valley, CA) and Paula Helmecke (Göttingen, Germany) worked with students in the horsemanship groups, while Devon Powell (Bozeman, MT) and Tana Getz (Missoula, MT) instructed the Barrel Racing group.

Two scholarships were made available by a fund raising raffle, while Dr. Peter Heidmann at Montana Equine Medical & Surgical Center provided a third scholarship for students to attend. These scholarships provide an amazing opportunity for youths with or without horses to learn about equitation and horse husbandry. The annual Youth Horsemanship School is improved every year due to generous donations from our sponsors: Danhof Chevrolet, Rocky Mountain Supply, Yellowstone Gateway Sports, Montana Farm Bureau, Boehringer-Ingelheim (makers of Vetera Gold vaccine), Lehrkind's Coca-Cola, Big Timberworks, Montana Farrier Supply, Four Corners Saddlery, Montana Big Sky Beef, the City of Bozeman, and Dollar Spree.



Deanne Hainsworth receives the Sandy Gagnon Youth Leadership Award plaque and jacket from Dr. Shannon Moreaux.

All students are awarded a certificate of individual accomplishment and several students receive special achievement awards during the closing ceremonies. The most coveted recognition among the students is the Sandy Gagnon Leadership Award, honoring the former director of the school. This award goes to the student who possess and displays leadership skills throughout the camp. This year's winner was Deanne Hainsworth of Gallatin Gateway, MT.

Anyone interested in information about next year's school or scholarships, donations and sponsorship please contact Dr. Shannon Moreaux moreaux@montana.edu or Julie Hager at jhager@montana.edu.



2011 Youth Horsemanship School participants.



Dr. Shannon Moreaux instructs students during the packing workshop.



MSU student Jenn Matelski says goodbye to one of her riding students.

Research Underway: Field Studies on Mosquitoes and Cache Valley Virus and Mosquito Response to Pyrethroid Insecticide Application to Sheep



Mosquitoes, captured in CO₂-baited trap, used for testing Cache Valley virus.

Dr. Greg Johnson, Entomologist at MSU Animal & Range Sciences Department, has research underway with several collaborators. These collaborators include: Hayes Goosey, Marni Rolston, Rodney Kott from MSU Animal & Range Sciences Department; Virginia Knerr, MSU Extension Service; and Whitney Miller, Sam Alvey and Gant Hokit from the Department of Natural Sciences at Carroll College (Helena, MT). Also helping conduct this research are MSU students Reagan Grabbe (from Bozeman, MT) and Justin Nagy (from Sunburst, MT).

Cache Valley virus (CVV), a mosquito transmitted pathogen, caused stillbirths and deformities in lambs, and a decrease in fertility rates in ewes in North Dakota and South Dakota during 2011. While the economic impact of this disease is unknown, one North Dakota farmer estimated a 20% loss of lambs this past winter. Further investigations have indicated that CVV was responsible for lower lambing rates in other states in 2011 including Nebraska, Michigan and Pennsylvania.

Disease transmission occurs only by hematophagus (blood-feeding) insects. Mosquitoes are the primary vector, although there is evidence that biting midges may also be involved. Peak transmission occurs during late summer or early fall, when a virus-infected mosquito (or midge) feeds on a pregnant ewe. When this occurs during early gestation, up to day 28, the fetus is re-absorbed. An infection between days 28 and 45 of gestation results in fetal deformities. A CVV infection after day 45 may have no adverse effects on lamb development. Risk of CVV transmission is greatly reduced by breeding after a killing freeze curtails insect activity.

While there were no reports of CVV in Montana in 2011, a study was undertaken to determine the presence of CVV in Montana. To achieve this, we are collecting mosquitoes and biting midges from several locations across the state. These insects will be tested for CVV which will help us determine the mosquito species (there are 50+ species in Montana) and midges that may be responsible for transmitting the pathogen as well as the prevalence of the virus in mosquito populations. In addition to Montana, insect samples are being collected in North and South Dakota.

We are also evaluating on-animal treatments of pyrethroid insecticides to determine if an insecticide will protect sheep from mosquito feeding and subsequent disease transmission. Treatments include the PYthon ear tag (20% zeta-cypermethrin + 20% piperonyl butoxide) at one tag per animal, a pyrethroid pour-on (2.5% permethrin + 2.5% piperonyl butoxide) and an untreated control. One



Lamb enclosed in vented mosquito trap.

night per week, treated and untreated lambs are transported to a cooperators farm near Toston, MT and placed in individual vented traps. Mosquitoes, attracted to the sheep, enter through one of seven trap vents and have the opportunity to blood feed. Mosquitoes are collected the next morning with battery operated aspirators, taken to the lab and identified to species and categorized as non-engorged or blood fed. Sheep are returned to Fort Ellis that same morning and isolated by treatment group until the next exposure date. Use of sheep for this research was approved by Montana State University Animal Care and Use Committee (2011-AA03).

Projected Outcomes: Information from this project will identify mosquito species that are attracted to and feed on sheep. Detection of CVV positive pools will facilitate determining those species involved in CVV transmission. This information will facilitate targeting mosquito control efforts to habitats where specific mosquito species are being produced. On-animal insecticide evaluations will determine if an effective insecticide is available to protect sheep from mosquito feeding and subsequent disease transmission.



Adding screen to vented mosquito trap are Carroll College student Whitney Miller (right) and MSU students Justin Nagy and Reagan Grabbe.

Other News



Rachel Endecott coordinated the Western Regional Academic Quadrathlon that was held in conjunction with the Western Section meetings. Five four-person undergraduate teams from the West competed in a written exam, oral presentation, hands-on lab practicum and a quiz bowl. The University of Wyoming won the contest, with New Mexico State University and Colorado State University placing second and third, respectively. Oregon State University and BYU-Idaho also had teams competing. Special thanks to **Lisa Surber** and **Rodney Kott** who created and proctored the wool and sheep station components of the lab practicum.



Hayes Goosey was recently awarded a Research and Education Grant from Western SARE (Sustainable Agriculture Research & Education). The grant is titled "Degree Day Modeling and Economic Considerations of Insects and Weeds in Sheep Grazed Alfalfa, Grain, and Range Production Systems." Cooperators on the grant include: John Baucus, Nina Baucus, Bob Lehfeldt, Les Thomason, Kevin O'Neill, Fabian Menalled, Gregory Johnson, Rodney Kott, Dennis Cash, Duane Griffith, Dan Durham and John Helle. This project focuses on annual and perennial forage crop production, dual-purpose crop production and developing integrated sheep grazing systems. It is aimed at increasing the sustainability of both livestock and crop production by expanding a previously developed degree-day based grazing model to two additional pests of alfalfa production and further exploring some of the complex reciprocal interactions between crops, weeds and arthropods. This grazing system represents a new paradigm in IPM by using strategic sheep grazing to prevent high pest insect populations before the growing season. In addition, the team will investigate the influence strategic grazing has on ecosystem services provided by beneficial arthropods, such as carabid beetles. The program targets youth, college students, producers and agriculture professionals through a cooperative program with a local K-12 public school, by developing a 'livestock in sustainable systems' college course and through the use of existing extension services.



Kate Perz, Animal & Range Sciences graduate student, recently spent ten days in Ames, Iowa attending the Iowa State University Meat Laboratory's 33rd Annual Sausage & Processed Meats Short Course. Kate had the opportunity to fly into Iowa five days early to assist the Meat Lab crew in preparing for the course. The course was focused on all aspects of sausage, emulsion, and processed meat making, and included many lectures from top researchers and industry professionals. To give the participants hands-on processing experience, they were split into groups and each group made a different product. Kate was the Graduate Student Assistant for one of the groups, and made bacon using different formulations and applications of liquid smoke; the groups then tasted the different bacons and discussed the taste and textural differences from each formulation or application. During her time in Iowa, she was able to use many different types of processing equipment some that she had never had the opportunity to use before. It was a great experience.

Upcoming Dates

August 29, 2011	2011 Fall Semester Classes Begin
September 5, 2011	Labor Day Holiday
September 14-16, 2011	Ram Sale (Miles City, MT)
October 14, 2011	College of Agriculture Scholarship Banquet
October 28-29, 2011	Ag Appreciation Weekend
November 11, 2011	Veteran's Day Holiday
November 24-25, 2011	Thanksgiving Day Holiday

Recent Conferences Held at the Animal Bioscience Building

May 22-24, 2011 **Annual Meeting of the Rangelands West Partnership**. More than 40 people attended the meeting from across the United States, plus special guests from Canada and Australia. The Partnership is comprised of range scientists and natural resource subject librarians from each of the 18 participating land-grant institutions in the western United States. This group has been working for nearly a decade to expand internet access to the world's rangeland literature and educational resources.

June 9-10, 2011 **Montana Stockgrowers Association Mid-Year Meeting**. Approximately 200 people attended this meeting that was held throughout the Animal Bioscience Building. The meeting included an Opening General Session where MSU President Waded Cruzado addressed the group.



Current News: Recruiting for Three New Faculty Positions

The Animal and Range Sciences Department at Montana State University is growing, and currently has searches in progress for a “cluster hire” of three new faculty. These positions include:

Assistant Professor Animal and Range Sciences—Ruman and/or Gastrointestinal Microbiologist

Overview: The Department of Animal and Range Sciences aspires to have regional (and national) prominence in animal genomic research focusing on improving utilization of rangeland resources. The person in this position will utilize modern techniques to define and improve ruminal and/or gastrointestinal tract of livestock to improve efficiency of production to feed the world (food security) and/or improve food safety. Potential exists to evaluate and improve the role of the ruminal and/or gastrointestinal microbiota with changing plant ecology due to changing environmental conditions. This position would serve as one of the nuclei for the department's beef cattle and sheep research programs, applied and basic.

Assistant Professor Animal and Range Sciences—Rangeland Plant Ecologist

Overview: The Department of Animal and Range Sciences aspires to have regional (and national) prominence in rangeland science. For example, given the unique environment of Montana and the northwestern U.S., the person selected will be able to utilize natural resources to evaluate adaptation and interaction of plants and animals (both domestic and wildlife) to environmental factors such as climate change or stresses. The new plant ecologist position will serve as one of the nuclei for the department's basic research and applied livestock and/or wildlife range resource management program.

Assistant Professor Animal and Range Sciences—Genetics

Overview: The Department of Animal and Range Sciences aspires to have regional (and national) prominence in animal genetic research. Through years of focused selection of sheep and cattle lines and access to modern molecular techniques, this person will be able to utilize these resources to further the livestock industry. Resources include Line-4 Hereford cattle lines along with lines of sheep selected for high and low reproduction. Utilizing these animal resources will allow the person selected to enhance livestock health management, reproductive efficiency, and adaptation to environmental issues. This position would serve as one of the nuclei for the department's beef cattle and sheep research programs, applied and basic.

Full position descriptions are located on our website at: <http://animalrange.montana.edu/>. If you have further questions please contact Glenn Duff, Department Head of the Animal & Range Sciences Department at (406) 994-3721 or by Email at glenn.duff@montana.edu.

“Bringing MSU to YOU” Animal & Range Sciences Department Tour of Eastern Montana (May 16-18, 2011)

Faculty and staff from the Animal and Range Sciences Department traveled with the first “Bringing MSU to YOU” tour. This tour was started by Glenn Duff, Department Head, to meet with the general public, interact with producers and meet potential MSU students and their families.

Participants in this year’s tour included: Glenn and Donna Duff, Dennis Cash, Susan Cooper, Rachel Endecott, Mike Frisina, Rachel Frost, Pat Hatfield, Peggy Kelley, Jeff Mosley and Bok Sowell.

The agenda for this year’s tour started with a tour of the Northern Broadcasting System in Billings, MT. The group then headed from Billings to Miles City, MT where a public forum was held at Ft. Keogh. From Miles City, the group headed east holding public forums in Broadus, Ekalaka and Baker, MT.

A special treat for this year’s tour was a visit to the Spark’s Family Ranch outside Ekalaka. Carol and Tom Sparks and their kids (Katy, Frank and Will) were wonderful hosts. Not only did they make an outstanding breakfast for the group, but they also gave a great history of the ranch and then took the group on a wonderful tour. Special thanks go out to the entire Sparks family for their hospitality.

We hope to make this tour a yearly outing and are thinking about heading out along the Highline in 2012!



Animal & Range faculty and staff open forum at Ft. Keogh in Miles City, MT.



Photos left to right: 1) Carol Sparks discussing her plant ID work 2) Touring Spark ranch, checking out vegetation 3) Triplets! 4) Map of Sparks Ranch



Former Student Comments

One of our Adjunct Instructors, Mike Frisina, recently shared a couple Emails from former students who spoke very highly of the MSU range program. Here is what they had to say:

“I guess you are probably in full swing with those wildlife ARNR class of yours. You know I really enjoyed those classes, right? I’m honestly thinking that those huge end-of-semester projects helped prepare me for the real world. Speaking of, I landed a job as a backcountry wildlife technician in Glacier National Park. It’s definitely my dream job Mike. I hike around monitoring eagle nests, loons, Harlequin ducks, pika, goats, and wolves. I assist in trapping bears and mountain goats and on occasion I repel into old mine shafts looking for bats. But I write a lot of reports as well. Everything I do must be documented, literature searched, and cited which brings me back to all those papers you had us write at MSU. Thank you.”

*Courtney Raukar
Class of 2009*

“I am a range specialist for the NRCS in Forsyth, MT. My job was created with money set aside for conservation of sage grouse habitat through NRCS’ Sage Grouse Special Initiative. The goal of the program in our office is to use money allocated for sage grouse to get good grazing plans on the ground—plans that would benefit the rancher, the land, his cattle, sage grouse and other wildlife. As a result I am very thankful I graduated from MSU with the Wildlife option of the Range degree. I remember writing several papers on sage grouse biology and management while I was in college and it has really set me up for this job as I am now responsible for identifying winter habitat, brood rearing habitat, leks, and possible concerns for the grouse. Wildlife classes taught me how rotational grazing can benefit wildlife—that is probably the most important part of my job—implementing plans to benefit wildlife and the rancher.”

*Kami Kilwine
Class of 2009*

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