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maize poster project
for *Science*

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COLLEGE OF AGRICULTURE & NATURAL RESOURCES

AG NEWS ^{UW}

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"Our aspirations
are our
possibilities."

Robert Browning

Dear Friends and Colleagues,

Winter came early to much of Wyoming. We can only hope the moisture helped build the snowpack in the high country or it soaked in before the soil froze.

This fall, with the support of most of you and the vast majority of our faculty and staff members, the college became the College of Agriculture and Natural Resources.

So, what's in a name?

In my mind, agriculture is part and parcel of any discussion of renewable natural resources. As I look at the challenges facing many of you, they involve water, soil, range, and climate as well as markets and policies. One rancher told me eight years ago he could raise a fine, fat steer,



Dean Frank Galey

(Continued on Page 2)



“We hope this name change, which reflects what we actually study in this college, will help with marketing our programs, services, and our state and internationally recognized applied research.”

but he needed help with clean water, drought, and how to sell him. Most of our producers rely on the land and the other resources at hand.

Further, while some of our students are from agricultural backgrounds, many are not. The latter cohort of students is who we must attract to the land and back to agriculture. Those students have a vague idea they might be interested in reclamation of disturbed lands, rebuilding of wildlife habitat, and assuring the quality of our water and open landscapes. These items are all agriculture in one form or another, and, if the expansion of our name to include natural resources helps those students find a home, that meets our goal.

Our faculty members aspire to have this college be considered by all students interested in the University of Wyoming and seeking education about the land, water, environment, food production, rural communities, and related life sciences. We hope this name change, which reflects what we actually study in this college, will help with marketing our programs, services, and our state and internationally recognized applied research.

In this issue, you will find an article on the retirement of Professor Stephen D. Miller, director of the Agricultural Experiment Station. Steve has served the state in many ways during his 26 years on this campus. He has successfully mentored 65 master's and Ph.D. students during his time here and while at North Dakota State University. We will miss Steve, and, if you see him, please wish him well!

Inside, you will also find information about a study of bonds related to oil and gas production, continued success of our scholarship programs, and an update on the biosafety level 3 laboratory being built at the Wyoming State Veterinary Laboratory.

Thank you for your continued support of your college! We wish you a Happy New Year! We can be contacted at (307) 766-4133 or by e-mail at agrdean@uwyo.edu. Our Web site is www.uwyo.edu/UWag/.

Dean Frank Gale
College of Agriculture

UW Board of Trustees approves College of Agriculture name change

The College of Agriculture at the University of Wyoming has a new name.

The University of Wyoming Board of Trustees voted in November to change the college's name to the College of Agriculture and Natural Resources.

Dean Frank Galey had obtained favorable comments about renaming the college at meetings around the state and from commodity groups. Galey also polled college faculty members and academic professionals. More than 90 percent approved the change in name.

"Our agriculture is completely interwoven into natural resource issues important to the state and its land and people," notes Galey. "The college name change will help attract students and other interested folks who are passionate about the land and rural communities but may not have seen themselves under a more traditional name and rubric."



Rawlins seeks help from UW CES and College of Agriculture and Natural Resources

At the request of the City of Rawlins, the University of Wyoming Cooperative Extension Service (UW CES) and College of Agriculture and Natural Resources will help as the city develops an economic development strategy.

The initial meeting was October 21 in Rawlins, and attending from the Department of Agricultural and Applied Economics were Professor David "Tex" Taylor, UW CES community development specialist; Associate Professor Roger Coupal, head of the department; and Tom Foulke, associate research scientist.

Taylor, Coupal, and Foulke shared ideas to help the city develop an economic plan. The first step is gathering economic data including what Taylor termed "retail sales leakage." This will focus on how residents spend money on goods, and where sales tax leakage is occurring outside Rawlins, including shopping in other communities or buying goods online or through mail-order catalogs.

The group also discussed studying the potential economic impacts of a national



Professor David "Tex" Taylor

pronghorn antelope visitor center in Rawlins and energy development.

"The city requested our assistance. They are concerned about industrial impacts in particular, and we'll help them look at the economic and fiscal effects of that," Taylor says.

FIRST CUTTING

Johnson County, 4-H educators receive top extension service awards

A 4-H/youth educator in the Johnson County University of Wyoming Cooperative Extension Service (UW CES) office in Buffalo received the Newer Employee Recognition Award, and a group of 4-H educators was presented the Creative Excellence Recognition Award.

The awards were received during the UW CES Extension Professional Improvement Conference October 12-15 in Laramie.

Rachel Novakovich, who began with UW CES in 2006, was presented the honor by UW CES Director Glen Whipple. Novakovich joined the Johnson County office in March 2006. She had previously worked in Uinta County as an intern for UW and later as the 4-H afterschool program coordinator.

Nomination letters praised Novakovich's optimism, enthusiasm, and positive attitude.

"She tackles problems head-on with a no-nonsense, matter-of-fact way that ends with everyone as winners," wrote one nominator.

"In her approximately three years with extension, she has made a positive impact on the Wyoming 4-H program and left her footprint in a number of programs throughout the area and state," submitted another.

Creative Excellence Award

Whipple presented the Creative Excellence Recognition Award to a group of educators for their efforts in the development and implementation of the 2009 Wyoming State 4-H Showcase Showdown.

They include, and their county or state office, Tammie Jensen, Niobrara; Dawn Sanchez, Uinta; Shar Perry, Lincoln; Kelli Kilpatrick, Teton; Robin Schamber, Sub-



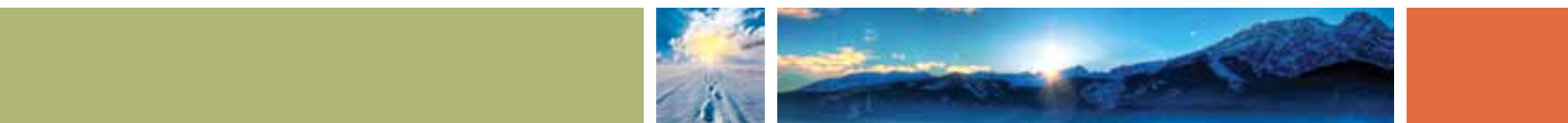
Receiving the Creative Excellence Recognition Award are, front, from left, Tansey Sussex, Jenna Evans, Sarah Jackson-Hill, Brynn Berg, Maaret McCauley, Allison Flynn. Second row: Shawna Potter, Tina Russell, Donna Cuin, Kelli Kilpatrick, Shar Perry, Tammy Jensen, Janet Lake. Back, Director Glen Whipple, Warren Crawford, Steve Mack, Kim Reaman, Lindsey Moniz, Crystal Olsen, Johnathan Despain, Amber Wallingford, Patti Griffith, Robin Schamber, Rachel Novakovich. Not pictured, Dawn Sanchez, Alex Malcolm, Colleen Campbell, Eloise Riley and Robin DeVries.

lette; Brynn Berg, Park; Amber Wallingford, Washakie; Maaret McCauley, Hot Springs; Alex Malcolm and Patti Griffith, Fremont; Donna Cuin, Natrona; Rachel Novakovich; Crystal Olsen, Weston; Tansey Sussex, Converse; Colleen Campbell, Natrona; Jenna Evans, Sarah Jackson-Hill, and Eloise Riley, all of Laramie County; Allison Flynn, Sheridan; Janet Lake, Crook; Tina Russell, Wind River Indian Reservation; Shawna Potter, Carbon; Warren Crawford, Lindsey Moniz, Kim Reaman, Steve Mack, Robyn DeVries, and Johnathan Despain, UW State 4-H Program office.

The annual conference brings together extension educators, specialists, and Cent\$ible Nutrition Program educators for training.



Rachel Novakovich receives the Newer Employee Recognition Award from extension director Glen Whipple.



Cost estimate on BSL-3 lab drops by \$3 million

By Robert Waggener, Editor
Office of Communications and Technology

Two nagging questions seem to always pop up when talking construction: is the project on time, and is it on budget?

Answers are often: “No, it’s behind schedule.” And, “No, it’s going to cost a lot more than the estimate.”

Though work is slightly behind schedule on the biosafety level 3 (BSL-3) addition to the Wyoming State Veterinary Laboratory, the construction estimate has actually dropped – from an initial projection of \$18 million in early 2008 to \$15.2 million by November.

“The recession has dropped construction costs,” says Keith Seebart, an associate director in the University of Wyoming’s Facilities Planning Office.

The estimate for design fees, laboratory equipment, furnishings, audio-visual equipment, and telephone and data services remains at approximately \$7 million, bringing the total estimated project cost to \$22.2 million.

The lab will be managed by the Department of Veterinary Sciences.

“It will give us safer and more secure facilities for diagnostic testing as well as research on diseases in livestock and wildlife caused by select agents such as brucellosis, plague, and Q fever,” says Professor Don Montgomery, veterinary sciences department head and WSVL director.

Seebart says, “It will be one of the most sophisticated labs; there is only one biosafety level higher. This lab is being designed to contain pathogens that are very dangerous to the livestock community and others.”

He added, “There are other BSL-3 facilities in the state, including a small BSL-3 in the WSVL, but they are small compared to the one under construction.”

In describing the security at the new lab, Montgomery says, “Except for two public areas, including a classroom and departmental offices near the main entrance and a receiving area for sample deliveries, access to the remainder of the building will be limited to staff and escorted visitors. Once you get to the BSL-3 lab, only individuals with the necessary



Professor Don Montgomery

training will have authorization to enter this area.”

Seebart says, “Construction is going well overall. We did run into a problem with the length of time it takes to get scientific equipment. The incinerator and a large autoclave won’t be installed until March so the contractor is working around that. The schedule is being revised by one or two months.”

Construction is expected to be complete by fall. The construction manager at risk is GH Phipps Construction Companies, which has offices in Colorado and Cheyenne.



Construction is well underway on the new biosafety level 3 lab at the Wyoming State Veterinary Laboratory.

Anne Sylvester leads maize poster

By Robert Waggener, Editor
Office of Communications and Technology

Science, a high-profile journal published by the American Association for the Advancement of Science, devoted much of the November 20th issue to the maize genome sequencing project.

The coverage included a pullout poster on the history of maize, from its domestication approximately 10,000 years ago to today's sequencing of the genome to a look at the future of maize, or corn, as a major world crop.

Department of Molecular Biology Associate Professor Anne Sylvester was part of a team that developed the poster. The University of Wyoming, she adds, helped sponsor the poster as a major announcement and educational extension of the genome sequencing efforts.

"Dr. Sylvester is chair of the international Maize Genetics Executive Committee (MGEC) and participated in the maize genome sequencing project as an adviser," says Associate Professor Mark Stayton, chair of the Department of Molecular Biology. "As part of her effort, she helped prepare a maize genome poster that was featured in *Science*. This highlights how our UW faculty members are connected nationally and internationally with the scientific research community."

Sylvester, internationally recognized for her genetics research involving corn, was contacted by scientists who published research on the sequencing project in *Science* to ask if she would develop content and text for the poster.

"It was an honor to take the lead on this project," Sylvester says. "It was a lot of work, many late hours, but it was well worth the effort."



Department of Molecular Biology Associate Professor Anne Sylvester checks soil moisture in a College of Agriculture and Natural Resources greenhouse where she is conducting corn research. The research could one day help breeders develop improved varieties of corn and growers harvest better crops.

Sylvester collaborated with two researchers on the maize sequencing project: Professor Patrick Schnable from Iowa State University, Ames, Iowa, and Professor Rob Martienssen from Cold Spring Harbor Laboratory, Cold Spring Harbor, New York. Also involved in the poster project were Sean Sanders, an editor for the Washington, D.C.-based *Science*, and scientific illustrator Cameron Slayden, owner of Cosmocytte, a scientific visualization studio in Savage, Maryland.

"The poster is a backdrop to the major research articles in this issue of *Science*. Two papers are published reporting the sequencing of two different genomes: one is an important variety grown in the Midwest states, called B73, and the other is a Mexican popcorn variety," Sylvester says. "From genome analysis, researchers

have learned that corn has a lot of genetic diversity, meaning there are many traits yet to be identified for future improvement."

Sylvester adds, "Now, the future is open for researchers to tap into these genes that could provide new traits and to study the function of the estimated 30,000 and more genes."

This will help corn breeders collaborate with researchers to develop traits for different environments and better yields and traits with greatly increased protein content and improved disease resistance, to name just a few long-term outcomes of having a complete sequence, Sylvester says.

"The maize genome sequence has had a major impact on my own research," Sylvester adds. "My lab studies how cells in the maize leaf grow, and now we are able to map genes and clone them in months rather



project for *Science*

than the years previously required. My lab and others are developing resources that will allow us to efficiently study the function of the proteins encoded by the genes.”

As part of this, Sylvester and others are developing lines of corn plants that will allow her lab and others around the world to visualize and study proteins as they are working in a living plant.

Cells make up the plant, and Sylvester’s long-term goal is to identify all the genes required and understand how the gene products, cells, and growing environment interact to direct growth of corn plants. She quickly points out her research is only one small piece of the larger research puzzle.

“Maize researchers have now entered the era where ‘systems-level research’ is possible, meaning scientists can study the complex interactions among all the parts that make a living organism function,” she says.

The applications of such study are far-reaching.

“Corn growers, breeders, and basic researchers will work together to solve future problems,” Sylvester hopes. “For example, corn continues to be a model grass to study ways to optimize plant-based biofuel production.”

A complete genome sequence is the first step in being able to work at a whole-system level in science, Sylvester says.

“Such advances occurred using the human genome sequence as molecular medicine is now a reality made possible by systems-level research,” she says. “We see the same future for maize, and this is why it was so important and an honor for me to help disseminate this information about the maize genome sequence through the highly visible poster medium.”

The MGEC formed in 2000 to identify the needs and opportunities for maize genetics and to communicate information of this type to researchers, breeders, growers, funding agencies, and others. Sylvester was elected to the international committee in 2006, and she was elected chair in March 2009.

Sylvester also served on the advisory board for the sequencing project. The board advised on the research direction of the project and provided outside external review. Additionally, she serves as an academic researcher on the steering committee for the National Corn Growers Association, helping to guide the major commodity group toward advocating for the post-genome sequencing needs and for systems-level analysis of corn.

The sequencing project started in 2005. Total support was approximately \$32 million, and it was a cooperative funding effort from the National Science Foundation (NSF), Department of Energy (DOE), and U.S. Department of Agriculture (USDA).

The lead institution on the maize sequencing project is the Washington University Genome Sequencing Center in St. Louis, Missouri. Other participating institutions include Iowa State University, Cold Spring Harbor Laboratory, Arizona Genomics Institute at the University of Arizona in Tucson, and the Joint Genome Institute in Walnut Creek, California.

Sylvester and her collaborators at other institutions, including Cold Spring Harbor Laboratory and the J. Craig Venter Institute in Rockville, Maryland, have received approximately \$5 million from the NSF, DOE, and USDA for their research on corn and to develop cell biology resources. ☛

For more information on the:

- Research by Department of Molecular Biology Associate Professor Anne Sylvester, including a link to the poster she helped develop for the November edition of *Science*, see www.uwyo.edu/uwmolecbio/Faculty/A_Sylvester.asp.
- Genomics project by Sylvester, see <http://maize.jcvi.org/cell-genomics/index.shtml>.
- Maize genome sequencing project and the articles in the November edition of *Science*, see www.sciencemag.org.
- Maize Genetics Executive Committee, which Sylvester chairs, see www.maizegdb.org/mgec.php.
- Maize genome sequencing project, see www.maizegdb.org/sequencing_project.php. Sylvester served on the advisory board for the project.
- National Corn Growers Association (NCGA), see www.ncga.com. Sylvester serves as an academic researcher on a NCGA steering committee.
- Illustration work by Cosmocyte, see <http://cosmocyte.com>.

Research eyes watershed hydrological response

By Steve Miller, Senior Editor
Office of Communications and Technology

Hydrological response to prescribed fires and churning trees into mulch in watersheds southwest of Casper is being studied by a range ecology/watershed management graduate student.

The study by Aaron Swallow in the Department of Renewable Resources is a bundle of research that will yield information about how the two treatments change vegetation, the effects on streamflows, and changes in soil moisture. Swallow began collecting data in 2008 in the Bates Creek watershed about 20 miles from Casper.

Some of the treatments had already occurred.

"This will take a long time," says Assistant Professor Ginger Paige, who is supervising Swallow. "Initially, if large amounts of vegetation are removed from a watershed, there is the expectation there will be an increase in runoff because there is less water being used by trees. A problem is we don't have 20 years of baseline data before the treatments took place; that would be ideal. If you look at the impacts of vegetation treatments on watershed hydrology, one has to do this over a long period of time."

The Kerfoot and Bell Draw sub-watersheds are also components of the study. Paige notes the project is not an assessment of the treatments. "All we are doing is quantifying the hydrologic response over time."

One objective of the treatments, removing (shredding) the conifers, is to promote aspen regeneration.

"Aspen is thought to be in decline in the West," says Swallow, adding that theories why include climate change and fire suppression, which allows the tree canopy to throttle sun-thirsty aspen.



Aaron Swallow gathers snow density and snow water equivalency data in the Bates Creek Watershed.

A saw crew went through the watersheds in 2004 targeting limber pines. The trees were cut and burned. It was hoped the disturbance-loving aspen would regenerate, notes Swallow. Older aspen, which release an anti-growth hormone that suppresses sucker growth, were also targeted.

But there was a change in plans. "The landowner was not satisfied," says Swallow. "There was not complete consumption of the limber pine."

In response, a machine called a Gyro Trac was used to clear areas. The machine pushes over trees and uses its rotary cutter to leave mulch behind. While prescribed burns are dependent upon the weather, the machine provides flexibility for clearing areas.

Working with Keith Schoup, a habitat biologist with the Wyoming Game and Fish Department (WGFD), locations to have prescribed burns or Gyro Trac use were pinpointed.

They also determined the critical areas

where Swallow should place instruments.

Swallow began his project in July 2008, about two months before winter would limit activities.

He placed instruments to measure temperature, wind speed and direction, humidity, and for measuring rain and snow, runoff, streamflow depth, and soil moisture. "More than 50 percent of the precipitation in the watershed is from snow," he notes.

With drier, long-term conditions forecast by some, vegetation will have access to less water. "As the temperature warms, there will be less snow and more rain," he says.

Swallow says the lack of any data to compare his data to is a challenge, but his effort will lay a foundation for subsequent long-term studies.

"There will be a good data set. As the vegetation changes, we will track the hydrologic response," he notes. "Aspen trees are successional. It will be interesting to see how the hydrologic dynamic changes."

to prescribed fires, shredded trees

Big Wyoming sagebrush that wins over other vegetation is also being burned. The treatment will cause less shrubs and more forbs. In 30-60 years, says Swallow, the sagebrush is expected to return.

"Each vegetation uses soil water differently," he notes. "Some are shallow; some are deep-rooted and have different rates of transpiration at different times of the year."

Paige points out the conflicts that can occur in watershed management. Promoting aspen because they should be a part of the landscape and for wildlife management is great, she says. "But they use a lot of water compared to limber pine. There are tradeoffs. In the short-term, there is a lot of water return by removing limber pine. If all the limber pine is replaced with aspen, which like water, in the long-term there might not be the water yield one expects. Until you quantify all the different components in terms of the processes, it's hard to discern what's going on."

Swallow received his bachelor's degree in wildlife biology from the University of Montana in 1996. He worked seasonal jobs for government agencies for several years, sometimes as a wildlife fisheries technician, a range tech in the summer, and working as a carpenter and in construction during winters.

He was then hired as a wildland firefighter with the U.S. Forest Service in the Encampment area. A number of reasons led him to pursue a master's degree.

"With the firefighter job, I was on call all the time during the summer and dispatched wherever," he says. He wanted to be with his family more, and he says he liked fire as a management tool. "I wanted to get more into the science of it."

His wife, Leah, herself a graduate of the College of Agriculture and Natural Resources

in the same degree, worked with Professor Ann Hild. Eventually, he became a graduate student of Paige; Paige wrote the Bates Creek project proposal.

"I was definitely interested in the project," says Swallow. "It was a good fit. It involved prescribed fire as a management tool and the forestry component as well."

Swallow's background has been a plus for the project. "Especially his fire background," notes Paige. "His knowledge and experience with prescribed fire has been very helpful."

Swallow tried to visit the watersheds at least once a week, spending three days there. Leaving Laramie about 5 a.m., he'd drive through Shirley Basin before turning east. He'd then download data from instruments into a waterproof laptop and conduct stream morphology and flow analyses, and collect information from 12 vegetation transects and five tree density plots. "Last year was field intensive," Swallow notes.

There were definite perks with the project. "Just being outside, and it's such a beautiful, unique area," he says. "Once you get east of the Shirley Basin road and south of Casper, it's gorgeous. There is also that aspect of solitude. Except for someone checking cattle, I'd be by myself."

He notes an important part of the project is the great collaboration between organizations and individuals. Those include the University of Wyoming, the U.S. Forest Service's Rocky Mountain Research Center (www.fs.fed.us/rmrs/about/), the WGFD, and the Bureau of Land Management.

Most important were the landowners, Swallow says. "None of this would have happened without them. They are proactive and very interested in the science of it." 🌲



Ag econ research shows bonds to cover

By Robert Waggener, Editor

Office of Communications and Technology

Research by the Department of Agricultural and Applied Economics has revealed that current bond amounts posted by oil and gas companies doing business in Wyoming do not adequately cover the costs of reclaiming abandoned wells.

The research also shows the current bonding system in the state is poorly designed, primarily because bonding requirements are not linked to production but are instead a fixed cost that doesn't keep pace with inflation.

"We have found the environmental bonds have little bearing on whether oil and gas companies fulfill their expectations for completing reclamation work," says Associate Professor Roger Coupal, head of the agricultural and applied economics department. "It

often boils down to reputation. The companies that are cognizant of their reputation in the state will complete the reclamation, and those less concerned about reputation won't."

Coupal and Matt Andersen, an assistant professor in the department, led the research and have presented their findings at several mining and reclamation meetings, including a national conference in Billings, Montana.

The team also published a paper in the spring 2009 edition of the *Western Economics Forum*. See <http://agecon.uwyo.edu/waeal/WEForum/WEF-Vol.8-No.1-Spring2009.pdf>.

Coupal says bonds for individual wells can cost as little as \$10,000 to ensure the wells will be properly plugged and reclaimed once production has stopped; however, the cost of such work averages approximately \$27,000 per well.



Assistant Professor Matt Andersen

Ag econ department expanding reclamation research

By Robert Waggener, Editor

Office of Communications and Technology

In addition to bonding, other factors influence the completion of well plugging and reclamation at oil and gas sites in Wyoming, according to researchers in the Department of Agricultural and Applied Economics.

Associate Professor Roger Coupal, head of the department, Assistant Professor Matt Andersen, and colleagues have examined the bonding issue (see story above) and are now turning their attention to other aspects associated with reclamation.

One of them has to do with the success of reclamation in Wyoming.

"We're in an arid environment so it's more costly to do successful reclamation, and there

are varying degrees of success," Coupal says.

He then asks, "What is really going on out there? Is reclamation getting done, and, if so, how successful is it?"

Coupal and Andersen, based on the sites they've visited, believe the majority of oil and gas companies doing business in Wyoming are working hard to reclaim well sites, but there are some not-so-reputable companies failing to do adequate work. Their statement was corroborated by the Wyoming Oil and Gas Conservation Commission (WOGCC), which inspects well sites on private and state lands while the Bureau of Land Management performs inspections on federal lands.

State Oil and Gas Supervisor Tom Doll says, "The WOGCC staff works closely with

operators to ensure they do adequate reclamation work."

There are more than 111,500 oil and gas wells in the state (this includes both producing and non-producing wells).

Andersen says, "It's an enormous task to just look at a handful of wells in a given day or week, so there has been very little monitoring of reclamation efforts when you look at the big picture. On top of this, it can take up to a decade to even know how successful reclamation has been."

Doll says, "The WOGCC does not release bonds until reclamation is inspected and complete. Reclamation normally takes about three years, but it can take longer, especially during drought."

oil and gas reclamation insufficient



Associate Professor Roger Coupal

This discrepancy comes into play when a company abandons a well for some reason, typically bankruptcy, Coupal says. These are called orphan wells in the oil and gas industry.

Andersen emphasizes that the number of orphan wells represents a small fraction compared to the total number of wells.

Between 1997 and 2007, he says, the Wyoming Oil and Gas Conservation Commission (WOGCC) had to reclaim about 255 orphan wells. In comparison, there are more than 111,500 oil and gas wells in the state, including about 40,000 that are producing.

Andersen makes another point of emphasis: reclamation costs associated with orphan wells on private and state lands are not paid by public tax dollars but instead by a special fund managed by the WOGCC. The WOGCC is the state agency responsible for

permitting oil and gas wells on private and state lands in Wyoming, maintaining well records, performing field inspections, and plugging and reclaiming orphan wells. The Bureau of Land Management oversees such work on federal lands.

Andersen says all oil and gas companies doing business in the state are taxed by the WOGCC based on production, and these tax dollars go into the fund.

“We’re taxing the entire industry to pay for the reclamation of orphan wells,” Andersen says. “Is it fair to tax the companies that are doing proper reclamation to pay for reclamation work not being completed by other companies?”

That’s a question, Andersen says, that would have to be addressed by the WOGCC if change was to take place.

(Continued on Page 12)

If they secure grant funding, Andersen and Coupal say they hope to put a team together that would use remote sensing to determine reclamation success. In part, this would involve taking aerial photos of well sites and comparing vegetation in reclaimed areas to nearby native vegetation.

“GIS (Geographic Information Systems) photos are very accurate; you can tell what kind of vegetation is growing,” Andersen says. “We believe this method would help the WOGCC and others monitor large areas and determine revegetation success.”

They also hope to analyze well ownership, goals of the WOGCC, and how the relationship between the two affects reclamation. ☘



The College of Agriculture and Natural Resources is involved in several research projects relating to the reclamation of oil and gas well sites in Wyoming. One of them involves how organic matter in soil changes during the entire process, from excavation to stockpiling to reclamation. Jennifer Faulkner, left, of McFadden, who is working on a master's degree in soil science, and Amber Mason, a soil science Ph.D. student from Sunray, Texas, map points in September where soil samples were taken on a reseeded gas pad in south-central Wyoming near Wamsutter.



Master's student Bridgette White, of Laramie, examines rangeland disturbance and associated reclamation at a gas well on the Atlantic Rim south of Rawlins. White is working on two degrees: agricultural and applied economics and environment and natural resources.

Ron White, a drilling inspector for the WOGCC, says, "We have a bonding system in place, and, yes, it's not sufficient to cover orphan wells. But all of the producers are paying into the conservation tax, which does cover the plugging and reclamation of orphan wells. The funding is sufficient to get the job done."

Janie Nelson, WOGCC natural resources program supervisor, says companies are taxed 4/10 of a mill on oil and gas production, which means 40 cents of every \$1,000 in production goes into the conservation fund.

It cost about \$500,000 annually to reclaim orphan wells in Wyoming and those wells having an insufficient bond, says Nelson, who emphasizes the fund, thus far, has covered this expense.

State Oil and Gas Supervisor Tom

Doll, who manages the WOGCC, emphasizes the conservation fund covers all operating expenses of the WOGCC, not just the work associated with orphan well plugging and reclamation.

"The conservation tax is not just to plug orphan wells. We utilize those funds to run our agency. We don't get any funding from the state's general fund," Doll says. "Only a very small portion of the tax (approximately 10 percent) goes to orphan wells."

In their report, Andersen and Coupal suggest that companies be required to post sufficient bonds to cover reclamation, and they encourage the WOGCC to establish an interest-bearing state reclamation account.

"This has the twofold benefit of ensuring sufficient funds to meet the future cost of reclamation, accounting for price inflation, as well as increasing the incentive of

producers to do the reclamation themselves by offering to return the initial bond plus some of the accrued interest," their report states.

The report adds, "Any changes to the current bonding system should target problem producers and allow the legitimate producers to continue to function without significant changes to their operations."

Assisting Coupal and Andersen in their research were Bridgette White, of Laramie, who is working on two master's degrees (agricultural and applied economics and environment and natural resources); Tina Willson, a postdoctoral researcher in the agricultural and applied economics department; and David Finnoff, an assistant professor in the Department of Economics and Finance, College of Business. ☛



University of Wyoming researchers are trying to determine how best to stockpile topsoil at gas and oil well sites in an effort to preserve organic matter. Taking deep samples from a topsoil stockpile at a Pinedale Anticline gas well last May were Amber Mason, left, of Sunray, Texas, a Ph.D. soil science student in the Department of Renewable Resources, University of Wyoming Cooperative Extension Service educator Calvin Strom, and, in the background, Cally Driessen, of Pinedale, who is working on a master's degree in soil science.



Reclamation center offers research, training to reclaim disturbed Wyoming lands

By Robert Waggener, Editor,
And Steven L. Miller, Senior Editor,
Office of Communications and Technology

Pete Stahl, a professor of soil ecology in the Department of Renewable Resources, has seen his fair share of reclamation successes and failures across Wyoming. He's been working with energy companies conducting restoration and reclamation research for more than 30 years.

"Most of the companies care about the environment and their reputation and want to do a good job with reclamation, but a few are not doing a proper job for whatever reason," says Stahl, director of the Wyoming Reclamation and Restoration Center (WRRC), a joint effort of the College of Agriculture and Natural Resources and University of Wyoming's School of Energy Resources (SER).

"For the most part, it's been less reputable, smaller, independent producers who

are not properly reclaiming sites," Stahl says. "I would guess less than 10 percent, maybe even less than 5 percent, of the wells have been improperly reclaimed during this recent boom."

Stahl would like to see the reputable companies be credited for their reclamation successes, while he hopes those companies in the minority consider changing their practices.

One way to better encourage all companies to take reclamation seriously is to make it possible for them to obtain more permits to drill if they successfully complete interim reclamation, including seeding, on wells that are still producing, Stahl says.

"I want to see good reclamation accomplished, and this is one way to help encourage that as it would give companies some credit for successful interim reclamation," he says. "The reputable oil and gas companies are asking for a system that gives them credit, and Gov. Dave Freudenthal is behind this effort."

Stahl explains that companies can only obtain so many permits to drill, but revising the system would allow for the rollover of permits for successful interim reclamation. The proposal is being discussed by state and federal land managers in Wyoming along with representatives of oil and gas companies. Stahl has also been involved in the talks.

He says the WRRC offers research, expertise, and training to energy companies, contractors – anyone – to help reclamation efforts be successful. Its Web site is www.uwyo.edu/wrrc.

"I feel strongly about the center," Stahl says. "Wyoming is a super-stressful environment. It has high elevations and cold temperatures, and it is dry with shallow soils. It's not easy to reclaim lands in Wyoming. One of the things we try to do is provide information on good reclamation practices. We try to teach people the

(Continued on Page 14)

importance of reclamation planning before they even create a disturbance.”

Stahl says he also hopes research by the WRRC helps guide policies that guide reclamation.

For example, he says, “We’re trying to come up with criteria for the condition of disturbed soils and revegetation. In order to disturb a site, you have to remove topsoil so it doesn’t get contaminated or destroyed, and you have to use good, established knowledge to get revegetation done right.”

Stahl is working closely with other faculty members in the College of Agriculture on reclamation issues.

Among them are Jay Norton, an assistant professor in the Department of Renewable Resources and soils specialist with the UW Cooperative Extension Service (UW CES); Calvin Strom, an area UW CES educator based in Carbon County; and Associate Professor Roger Coupal and Assistant Professor Matt Andersen in the Department of Agricultural and Applied Economics.

“Roger, Matt, and their colleagues are looking at the economics of it all, while we’re focusing on the science. All of their economic information can also be used to help guide policy,” Stahl says.

Norton, Strom, and others launched a three-year project in 2008 to examine how topsoil changes (notably organic matter) once it is disturbed at oil and gas well sites in Wyoming.

“These soils have low organic matter to start with, but what they do have is very important to plant growth,” Norton says. “Organic matter can be lost because it’s being exposed to oxygen, and soil structure is being broken down once the land is disturbed.”



Professor Pete Stahl



Assistant Professor Jay Norton

The team is examining numerous aspects relating to topsoil and revegetation, including the ideal depth of stockpiles to protect organic matter.

Norton says reputable oil and gas companies doing business in Wyoming want to make sure they successfully complete reclamation, and that’s why three companies are helping to fund the \$120,000 project.

SER contributed \$60,000, while each of the energy companies granted \$20,000. They are BP America, EnCana, and Questar Corp.

Stahl says that part of the WRRC’s mission of teaching and research is outreach. It has sponsored various workshops open to anyone interested in reclamation. Topics include soils, weed problems, wildlife issues, water and hydrology, revegetation, and monitoring.

“We want to get the word out to everybody so they understand what is going on with their state and federal lands,” Stahl says. “Another important reason we want to help the general public know what is going on in reclamation is to help private landowners keep up with what is happening on their places.”

Gov. Freudenthal last year tapped the WRRC to receive about \$2 million in federal Abandoned Mine Land funds, with the College of Agriculture and Natural Re-

sources to raise another \$10 million to create a permanent endowment.

The WRRC works with a web of entities: state and federal government regulatory agencies, energy companies, and contractors, and it also attends to training undergraduate and graduate students for a minor or certificates in land restoration and reclamation.

The energy industry has been very helpful to the center, Stahl notes. “They have supported the center financially, have attended our workshops, and are supportive of helping develop the reclamation technology they are so dependent upon to successfully accomplish their mission.”

The recent oil and gas boom has made the energy industry the most in need of reclamation assistance, even though the activity is slowing down, he says. The coal mining industry has been conducting reclamation for many years.

The natural gas patch with its well pads has its own needs. Regulations require topsoil to be scraped off, stored, respread, and reseeded when construction is complete and/or when a well that has quit producing is removed. “The wells are small disturbances compared to coal mines, but, cumulatively, they amount to a lot,” says Stahl.

Restoration and reclamation efforts are not new to Wyoming: “Thirty years ago, the National Academy of Sciences studied whether revegetating disturbed landscapes was even possible in Wyoming,” says Stahl. “The coal mining companies have demonstrated it can be done. We have made great strides the past 20 to 30 years, but we still have to keep going. We’ve been building on a lot of work already done.” ☛

Women professionals offer students career examples

By Steve Miller, Senior Editor
Office of Communications and Technology

University of Wyoming students wanting exposure to the opportunities – and the challenges – for women professionals hosted three speakers in November for “Shattering the Glass Ceiling: Stories of Successful Women Professionals.”

The American Association of Family and Consumer Sciences (AAFCS) Wyoming student group sponsored the evening presentation November 12, and the speakers then spent the next day with Department of Family and Consumer Sciences graduate faculty members.

The opportunities for women professionals are better now but there are still large challenges, says Professor Virginia Vincenti, who is an advisor to the AAFCS.

“On the surface, things seem fine, but there are still plenty of challenges and biases,” she notes. “In some cases, people don’t realize the biases they are perpetuating. If you apply this to race, if you are not in the minority group, you don’t know what it is like. You are reminded every day you are not in the dominant race or class.”

The student group, whose members are students in the Department of Family and Consumer Sciences, had been planning the event for a year, says Natalie Ferguson, president of the Wyoming AAFCS group. The group is open to any student interested in the mission of improving the lives of individuals, families, and communities.

“We proposed the event to expose women to the foundations necessary to be a successful professional woman,” says Ferguson, a junior from Highlands Ranch, Colorado. “We hope that, by the end of the event, students gained confidence and motivation to follow their dreams.”

The family and consumer sciences department routinely calls upon alumni to visit with students about career possibilities but wanted to provide a broader perspective. “We thought it might be helpful to talk with people well into their careers and who have had a lot more experiences than the alums we might typically connect with,” says Vincenti.

Vinenti had been invited to work on various book chapters and shared some of the information about the speakers with

southern farm to become professor and dean emeritus and director of the Center on Better Health and Life for Underserved Populations, Florida State University. Ann Collins Chadwick, who did not enter college until her mid-30s, served as the USDA acting assistant secretary for food and consumer services, USDA director of the Office of the Consumer Advisor, director of the Consumer Affairs for Hormel and Company, and executive director of the AAFCS, now retired.

The three speakers met with graduate faculty members the next day to offer insights about the department’s program.

“They will make suggestions, but it’s up to us to determine what we do with their suggestions,” says Vincenti, a member of the committee. “They gave us some preliminary ideas. They said the flexibility in our program is a strength and a challenge – a strength in that we can design a program to meet the needs of students, but it’s hard to market the program because of its flexibility.

“They thought that we sometimes underestimate our setting,” she says. “They saw Wyoming as having desirable assets and an environment that would be attractive to students. We know it attracts some students, especially those who love the outdoors. That was nice to hear.”

The event exposed students to an aspect of life not all may have experienced.

“Many students are young enough they don’t know the struggles a lot of women have faced in their careers,” says Vincenti. “Some students today live a life that is privileged. Certainly, there are students from difficult backgrounds and low-income families. Everyone should have the opportunity to realize their potential and to make a difference with others.” ☺



From left, Ann Collins Chadwick, Penny Ralston, and Tahira Hira spoke to members of the American Association of Family and Consumer Sciences Wyoming chapter.

the students. Encouraged, the students decided to open the event to the entire campus and asked the Associated Students of the University of Wyoming for funds. The AAFCS Recognized Student Organization had funds available, and the FCS department also contributed, says Vincenti. The Office of Academic and Student Programs and the Center for Advising and Career Services also provided funds.

Speakers were Tahira Hira, professor and executive assistant to the president, Iowa State University. A native of Pakistan, she left her family and country to move to the United States to receive her education. Penny Ralston was raised on a small

Graduate student earns International

By Robert Waggener, Editor
Office of Communications and Technology

Department of Agricultural and Applied Economics graduate student Darlington Sabasi has earned a fellowship to participate in the 2010 International Livestock Congress-USA.

The congress and related events are January 10-13 in Denver, Colorado. This year's theme is **Envisioning 2020** – Preparing for Future Global Demand.

Sabasi, of Zimbabwe, Africa, joined the department in the fall. He literally hit the ground running after earning a departmental scholarship that allowed him to travel to northwestern Wyoming, where he toured the Powell Research and Extension Center and met producers at area farms.

He wrote a paper in part to satisfy requirements of the travel scholarship. It focuses on the differences between crop production in the Powell area and his native country. A condensed version appears on page 17.

Sabasi, who is working on two master's degrees (agricultural and applied economics and environment and natural resources), was one of 12 graduate and undergraduate students selected from an international pool of applications to receive fellowships for the International Livestock Congress-USA and related activities. The fellowships cover trip expenses.

"The fellowship selection committee was particularly impressed with Darlington's ability to maintain a high grade point average (GPA) while also taking on leadership roles and being active in extracurricular activities," says Assistant Professor Ben Rashford, graduate student program coordinator for the Department of Agricultural and Applied Economics.



Darlington Sabasi

Rashford says Sabasi graduated with honors from Africa University with a degree in agribusiness.

"Darlington maintained a 3.61 GPA while being active in student leadership programs and athletics," Rashford says. "Among his many achievements and extra-curricular activities at Africa University, he was a captain for cross country and soccer, a student member of the university's curriculum review committee, president of the Model United Nations debate team, and class president. Darlington is also a published poet."

The Englewood, Colorado-based International Stockmen's Educational Foundation (ISEF), along with industry and private sponsors, fund the livestock congress. The ISEF, with assistance from the National Western Stock Show, Rodeo and Horse

Show (NWSS), host the event.

"The fellowships are highly competitive," says the ISEF's student program coordinator, Wendy Woerner. "We generally receive 60 to 70 applications from around the world. This year, there were 58. We have an internationally diverse selection committee, and the seven members review every application top to bottom. They spoke this year that it continues to become more competitive, and that it's getting tougher to choose fellowship recipients."

Six fellowships are awarded to students who are native to the United States, and six go to international students. Students in either group can be studying in the U.S. or abroad.

The objective of the congress in recent years has been to focus on major international issues affecting the beef industry.

At the 2010 congress, industry leaders, producers, packers, retailers, and students will hear about future trends of global meat markets, international trade markets, and agricultural trends, including discussion about the current economic impact and political updates that affect the industry.

Rashford says one of the reasons Sabasi wanted to attend is because his master's thesis research, under the direction of Assistant Professor Chris Bastian and Professor Dale Menkhaus, focuses on meat markets.

"Darlington is examining the market impacts of captive supplies – slaughter livestock committed to a meatpacker several weeks in advance of slaughter," Rashford says.

Sabasi will use an experimental economics approach that will involve setting up a market in the experimental economics



Livestock Congress fellowship

laboratory in the Department of Agricultural and Applied Economics.

“The issue of captive supplies in cattle procurement remains a concern in the U.S. beef industry because of its potential to reduce prices for cattle not committed to a meatpacker in advance,” Rashford says. “This project is particularly interesting to Darlington because of the relatively recent increase in forward contracts in Zimbabwe.”

In addition to the congress, students will tour area meat plants, feedlots and ranches, participate in a student career workshop, meet with ISEF and NWSS representatives, and attend several NWSS events.

Students being awarded travel fellowships must submit a paper following the congress that summarizes the outcome of the event. Top papers will be published

in event proceedings, and an outstanding paper will be chosen and showcased in the following year’s congress.

The recipients will also be required to make a presentation on their experiences at the congress to a breed association or similar group in their area.

For more information about the congress and how to apply for fellowships, go to www.theisef.com. ☛

Contrasting crop production between Powell and Zimbabwe

Editor’s note: *Darlington Sabasi grew up on a crop farm in rural Zimbabwe, Africa. He was accepted into the Department of Agricultural and Applied Economics master’s degree program in the fall. During his first few weeks in Wyoming, he visited the Powell Research and Extension Center and met with area producers. The article is his reflections on the differences between crop production in Powell and Zimbabwe.*

By Darlington Sabasi

Crop production varies from place to place, country to country, and continent to continent due to differences in climate, soils, and crop requirements; however, research and technological development now allow almost any crop to be grown anywhere.

Most of the landscape in northwestern Wyoming around Powell looks barren in the eyes of the passersby. The land lacks vegetation, and the soil looks like little water has fallen on it for ages. I was amazed to observe, however, how productive this land has become with efforts of local farmers.

I am from Zimbabwe, a country blessed with fertile land requiring little alteration to produce crops. Agriculture is the backbone of the country’s economy.

I have spent most of my life on my family’s farm in Zimbabwe growing tomatoes, cabbages, onions, beans, and carrots. Our farm is 250 acres of red, black, and sandy soil. All of our crops are produced under irrigation with water drawn by an electric pump from a nearby river. We use primarily manual labor, on average employing 20 people. Produce is generally sold in the spot market though production contracts have recently become available.

Given my background, it was marvelous to visit Powell – a hive of crop production. Though Wyoming and Zimbabwe are similar in many ways, I noted several important crop production differences including climate and its impact on productivity, contract farming, mechanization versus manual labor, and government subsidies and insurance.



Darlington Sabasi, right, and a friend harvest sugar beans in his native country of Zimbabwe, Africa.

Upon visiting Powell, I filled with happiness as I saw thousands of acres under crop production – land that, if it was in my country, would have been long abandoned. The major crops I observed were sugar beets, beans, alfalfa, and barley. One of the first things I noticed was how water is diverted from a river and channeled to all the farms in the area.

In addition to irrigation, Powell farmers must consider several other factors before planting. For instance, they

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must know when to plant as hours of sunshine and sun angle vary seasonally. These factors have severe impacts on crop production if not accounted for. Despite unfavorable climatic conditions in Powell, the farmers have mastered crop production by making use of irrigation and the short growing season.

Zimbabwe, in contrast, has a largely subtropical climate, a rainfall season from November to March (mean annual rainfall is 31 inches compared to 7 inches in Powell), and rich soils. Despite this favorable climate, Zimbabwe faces a critical food shortage. The major reason for this disparity is the economic and political instability, which has left virtually all industries paralyzed.

I was eager to know why Powell farmers concentrate on certain crops. The major attribute, I learned, was not only that environmental conditions are favorable but the crops have a ready market. Before production starts, farmers negotiate with buyers and enter into contracts guaranteeing they can market their harvest. As a result, prices are predetermined. I found this interesting because Zimbabwe recently introduced contract farming. Few farmers, however, have embraced this new method. The spot market generally offers better prices than forward contracts. In fact, the few farmers who tried contract farming have been breaching contracts after realizing the spot market price was higher.

After observing the success of contract farming in Powell, I am convinced that, if fully implemented, contract farming in Zimbabwe has the potential to revamp the struggling agricultural sector.

Agriculture ranks as the largest employer in Zimbabwe, making up nearly 70 percent of the labor force. Although

there are numerous research stations and extension services to provide farmers with the latest available seed and production methods, costs associated with mechanization remain a major stumbling block. Manual labor is used intensely from planting until harvesting. A 200-acre farm, for example, requires at least 20 workers. In contrast, mechanization at the farms near Powell has replaced this labor force. I found it hard to believe one farmer, who has 6,000 acres of land, could manage the land and produce crops with only the help of his wife.

One of the more interesting things I found was how the government subsidizes crop production in Powell and how the farmers welcome cutting edge technology that aids in high yields and large areas planted. The government plays a pivotal role in ensuring farmers have necessary inputs and machinery and giving the farmers subsidies that act as incentives for continued production.

The Zimbabwean government tried a farm mechanization program, but it became a political victim. Sadly, most of

the equipment acquired by the government did not reach intended beneficiaries and is currently idle. This has been the case for most of the subsidies. If only the actual farmers could get the subsidies and put them to their intended use, productivity, in my view, would increase.

Protection from risk is another characteristic I found striking about crop production in Powell. Crops are typically insured in case of any uncertainty. This motivates farmers to produce as farming is one of the most risky businesses. Crop insurance is of paramount importance especially when I consider my experience. In 2007, a hailstorm destroyed all of our crops – crops that were only a few weeks from harvest. Because they were not insured, all the effort, energy, inputs, and time were reduced to nothing. As a result, in a bid to reduce the risk of catastrophic events, there has been reduction in the land planted so at least if there is another event the loss will be less.

There are other differences between crop production in Powell and Zimbabwe, including the availability of inputs, such as seed, fertilizers, and chemicals, but I found the ones mentioned above to be most informative. Of course, there are bound to be differences between developed and developing countries. Nevertheless, the gap is being widened by inefficient allocation of resources and improper planning in developing countries.

There continues to be a need for government to provide subsidies and implement mechanization programs to deserving farmers in a transparent manner, to give more incentives for contract farming, and to make insurance accessible to farmers at reasonable costs for productivity and farm security to increase in Zimbabwe. ☺

Department of Agricultural and Applied Economics graduate student Darlington Sabasi takes a soil sample from a sugar beet field near Powell.



UW Meat Judging Team invited to international competition

By Robert Waggener, Editor
Office of Communications and Technology

The 2010 University of Wyoming Meat Judging Team has been invited to participate in an international meat judging contest this July at the University of Queensland in southeast Australia.

"This invitation is in reciprocation for the hospitality the Australian teams have received from past UW meat judging teams and our faculty and staff members in the Department of Animal Science who are associated with our meat science program," says Professor Doug Hixon, head of the department. "I believe it also reflects the quality of our program and the respect they have for it."

Hixon says he expects at least 14 students in the department's meat evaluation class will compete for five spots on the team that will represent UW in Australia and other judging meets. Students eligible to try out are those enrolled in the class.

"They will vie for the honor to be on the team during the spring semester," Hixon says.

Joining the team on the Australia trip and other events will be the coach, Lander Nicodemus, of Cheyenne. Nicodemus is working on a master's degree in the animal science department, focusing on meat science and food technology.

One animal science faculty member will also travel with the squad to Australia, but that individual had not been selected as of press time.

Each year, Hixon says, the Australian Intercollegiate Meat Judging Association (AIMJA) assembles a national team to represent its country at the American



Coach Lander Nicodemus



Professor Doug Hixon

Meat Science Association's (AMSA) first intercollegiate meat judging contest of the year. The contest is in conjunction with the National Western Stock Show, Horse Show and Rodeo in Denver, Colorado.

"Our department always invites teams participating in the National Western collegiate, 4-H, and FFA meat judging contests to the UW Meat Laboratory for a high-quality workout," Hixon says.

A team from Australia has participated in the UW practice sessions approximately five times. "They have always appreciated our hospitality," he says.

AIMJA annually invites one team from the United States to its international competition. In the past three years, Hixon says, teams have represented the AMSA from the University of Illinois, Oklahoma State University, and Colorado State University.

The Australian contest will be in conjunction with an international meat industry conference June 29-July 4 that will include tours and sessions led by corporate leaders in numerous aspects of the meat industry, Hixon says. The meat judging contest will be the culminating activity of the conference.

"We're excited about the opportunity for our students to experience this educational event and not only represent UW, the Cowboy State, and the Wyoming beef industry but also the national beef industry in this international competition," Hixon says. "The question never was whether UW would accept this invitation but simply how we would go about raising necessary funds to make it happen."

It is estimated UW's participation will cost approximately \$20,000, and planning was underway by November to raise funds, Hixon says. Those wishing to donate may contact the department at (307) 766-2224, or e-mail animalscience@uwyo.edu.

Adviser of the meat judging program is Warrie Means, an associate professor in the animal science department. ☛

Steve Miller retires from Wyoming Agricultural Experiment

Stephen D. Miller will walk out the Wyoming Agricultural Experiment Station (AES) office this January the last time as its director and as an associate dean in the college.

Thirty-seven years in academia at the University of Wyoming and North Dakota State University (NDSU), countless hours conducting weed research – and more hours directing graduate students – will end.

There will be a radical change in his schedule. “I would like to travel with my wife, Bonnie,” says Miller. “For the past 12 years, we have been into antiques, and now we are very avid antiquers and enjoy going to auctions. This has been tremendous fun for us, and we would like to travel to other areas of the country, not just locally.”

The Colorado native who was raised in the demanding lifestyle of a dairy farm – he has no fondness for cows – decided to study weed science. His background proved useful to serving Wyoming agriculture, says Jim Freeburn, director of the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) near Lingle.

Himself a 28-year UW employee, Freeburn says Miller has been the staunchest supporter of UW research and extension (R&E) centers he has known.

“His background from a farm in northern Colorado made him especially well-suited to understand the daily rigors associated with production agriculture in the High Plains, and Steve also had a keen understanding of the needs and associated costs of running the research centers,” Freeburn notes.

UW College of Agriculture and Natural Resources Dean Frank Galey complimented Miller’s leadership and performance.

“The college has been really well-served by Steve, who’s been willing to step up and



Professor Stephen D. Miller

take leadership of the program, which has covered a lot of ground in the last few years he’s been on board with the AES.”

That sentiment is echoed by Abdel Mesbah, director of the Powell R&E Center. “Steve has been an avid supporter of the R&E centers even before he accepted the director position,” says Mesbah. “I know the experimental stations are dear to his heart and mean a lot to him. Through his leadership, the center in Powell has grown stronger and acquired much-needed equipment to advance research work. For sure, Steve will be missed.”

Miller decided to enter graduate school rather than return to the dairy farm after receiving his bachelor’s degree in agronomy from Colorado State University. He chose a fellowship at NDSU and worked under mentor John Nalewaja and later as a colleague when he became an assistant professor there. Miller says Nalewaja was the most influential person in his life.

“He instilled in me the importance of

the hard work of really directing research to answer questions that are a concern to growers and producers in the state,” Miller says. “He also instilled in me you had to go out and write grants and get money to do the type of research you wanted to do.”

Miller came to UW in 1984, attracted by the program former professor of weed science Harold Alley had created. There were other factors – weather, for one. But he and his wife also wanted their children to be nearer grandparents.

He had two goals when he came to UW. “I really wanted to train as many students as possible and answer as many questions as possible the farmers were throwing out at me,” he notes.

As to answering questions, “During his distinguished career as a weed scientist,” notes Freeburn, “Steve rightfully earned the respect of colleagues at land-grant universities, in agribusiness, and especially from the farmers and ranchers we serve.”

Miller has advised 65 graduate students, all employed at other universities or in the plant protection industry.

Miller, while at NDSU, was on the graduate student committee of Adrian Moses, who is now with Syngenta. Moses recalls his first trip with Miller to a plot near Williston, North Dakota. “He told me we didn’t have a mower at the location, so we mowed down all the sunflower stalks after harvest with a Dodge pickup,” says Moses. “His creative efficiency always impressed me. It worked!”

Moses says Miller created a motivated program and a good working environment, and he also worked with Miller when Miller was president of the North Central Weed Science Society. “It was his leading by example that helped keep us on target in challenging times,” says Moses.

Station

Michael Edwards, with DuPont Crop Protection in Pierre Part, Louisiana, has worked collaboratively with Miller on technical and professional projects.

“Steve has the unique ability to take raw data and field observations and turn them into knowledge to improve production agriculture,” says Edwards. “His enthusiasm and drive has turned UW into a leading agricultural research organization – both in facilities and people. His reputation as a premier weed scientist goes far beyond the borders of Wyoming and has impacted growers in every state.”

Miller says the AES is in good shape. He helped develop SAREC from a rough ranch to the center with research opportunities it is now. At Powell, the seed certification building was renovated, the greenhouse was improved, and a lateral sprinkler system added. The research emphasis at Sheridan was shifted from dry land crops to horticulture. “We will eventually have two faculty members there,” says Miller.

The animal science farm, McGuire ranch, and the research greenhouse were merged into the Laramie R&E Center. “By doing this, we were able to upgrade the greenhouse, put in a GrowSafe system for sheep at the farm, and upgrade a pellet mill to put our pellet formulations together for Laramie and SAREC. Most important, I believe we have increased faculty involvement at all the R&E centers.”

Miller adds Galey has brought tremendous stability to the college and has been able to add a number of critical people. “The college is in very good shape to meet the needs of our clientele,” Miller notes.

Galey says he planned to have someone as Miller’s replacement soon after the first of the year. ☺



Recipients of the National Western Stock Show awards include, from left, Stephanie Schroeder, Douglas, a junior majoring in animal and veterinary sciences (ANVS); Jerod Smith, Meeker, Colorado, a graduate student in entomology; Kailey Barlow, Big Piney, a freshman in ANVS; veterinarian Robert Shideler, chair of the National Western Stock Show Association Scholarship Trust; Lauren Schiermiester, Buffalo, a sophomore in ANVS; Amy Berry, Cheyenne, a junior in ANVS; Kelsie Speiser, Casper, a senior in ANVS; and Leena Horton, Riverton, a senior in agricultural business.

College of Agriculture students earn \$378,000 in scholarships



By Robert Waggener, Editor
Office of Communications and Technology

Nearly 200 College of Agriculture students were presented scholarships totaling \$378,000 during the annual Brand of Excellence Scholarship Banquet October 16 in the Crane-Hill dining area on the University of Wyoming campus.

Each was recognized by College of Agriculture and Natural Resources Associate Dean Jim Wangberg, director of the Office of Academic and Student Programs.

College of Agriculture and Natural Resources Dean Frank Galey also congratulated the students. He said those receiving scholarships are top students in the college, and it’s up to them to take on leadership roles now and in the future.

Galey also thanked the donors. “Our college owes a huge debt to all of you for your support. Your contributions and faith in young people will help these students as well as future generations.”

There was one new scholarship for the 2009-10 academic year – the Frank Rauzi Scholarship in Soils and Range Management.

Rauzi, a native of Sheridan, earned bachelor’s and master’s degrees in range management from the University of Wyoming in the early 1950s. He worked for the U.S. Department of Agriculture, was a founding member of the Society for Range Management, and authored numerous publications on reclamation, soils, rangeland vegetation, and watershed management.

Anne Leonard, college relations officer, says Rauzi created the scholarship

before his death in February because he was a strong advocate for education and wanted to help UW students interested in careers in soils and range management.

Jeff Conley of Denver, Colorado, a junior majoring in rangeland ecology and watershed management, is the first recipient of the Rauzi scholarship.

Leonard says the National Western Stock Show Association Scholarship Trust made a commitment to permanently endow its existing scholarship program at UW. The group of scholarships includes the National Western Stock Show scholarships, graduate student scholarship, livestock leadership internship, and Courtenay C. Davis Memorial Scholarship. The Davis scholarship is in honor of the late Wyoming governor and U.S. senator Clifford P. Hansen.

Members of the scholarship committee include Assistant Professor Chris Bastian, agricultural and applied economics; Associate Professor Shane Broughton, family and consumer sciences; Associate Professor Mark Gomelsky, molecular biology; Associate Professor Warrie Means, animal science; Professor Donal O’Toole, veterinary sciences; Associate Professor Jim Waggoner, renewable resources; and senior lecturer Dave Wilson, plant sciences.

College of Agriculture and Natural Resources undergraduate and graduate students (including incoming freshmen) interested in applying for a scholarship may contact Kelly Wiseman, a staff assistant in the Office of Academic and Student Programs, at (307) 766-4135 or kellywis@uwyo.edu. ☺

Agricultural and Applied Economics

Kristi Hansen is now making her livelihood off something many take for granted – water.

Hansen started in August as an assistant professor and extension specialist in water resource economics for the Department of Agricultural and Applied Economics and University of Wyoming Cooperative Extension Service.

“I have been traveling around the state getting to know people and finding out what sorts of water issues need attention,” she says.

Among the themes: issues stemming from water produced by coal-bed methane development, the adoption of new irrigation technology, and how to maintain and restore water resources in ways that are economically and ecologically sustainable.

Forty-five percent of her appointment is research, 35 percent extension work, 15 percent teaching, and 5 percent university and public service.

Associate Professor **Roger Coupal**, head of the agricultural and applied economics department, says, “Kristi will help inform the public on policy discussion relating to water use and management in the state.”

Starting in January, Hansen will begin teaching a new course



*Assistant Professor
Kristi Hansen*

– production economics.

Raised in California, she earned a bachelor’s degree in economics from Reed College (Portland, Oregon) in 1996. For the next four years, she worked as an economist for a trade organization in Portland that represents publicly owned electric utilities.

She went back to college, earning a Ph.D. in agricultural and resource economics from the University of California, Davis. The national Agricultural & Applied Economics Association in July honored Hansen with its 2009 Outstanding Doctoral Dissertation award.

A full story on Hansen is in the November issue of *Agademics* at www.uwyo.edu/uwexpstn/Agademics/Agademics_main.htm.

Animal Science

Department of Animal Science sophomore **Becky Vraspir** has been chosen as a member of the 2010 National Beef Ambassador Team.

Vraspir, of Emerson, Nebraska, was among five selected during the annual competition October 9-11 in Fort Smith, Arkansas, according to the Cattlemen’s Beef Promotion and Research Board.

“Becky is a very bright, serious-minded young lady who makes the very most of educational opportunities, both in and outside of the classroom,” says Vraspir’s adviser, Professor **Doug Hixon**, head of the animal science department.

“Success in the National Beef Ambassador competition is just one example of how Becky can multitask and prioritize her time to successfully complete an external task while still maintaining excellence in her academic endeavors,” he adds.

Contestants from throughout the country vied for a place on this elite team of agriculture advocates. They were judged in the areas of consumer promotion, classroom presentation, media interview techniques, and issues response. Additionally, five educational scholarships totaling \$3,750 were given by the American National CattleWomen Foundation Inc. Vraspir earned two scholarships



Becky Vraspir

totaling \$1,750. She will receive them on completion of her year as a National Beef Ambassador, which will be December 2010.

Vraspir’s emphasis is in business and production. She is a member of Sigma Alpha Sorority, a professional agricultural sorority, in which she and her fellow sisters participate in activities to inform the public about the importance of agriculture in everyday life.

As youth ambassadors, team members speak to industry issues and misconceptions, while educating peers and others about food safety, nutrition, and the Beef Checkoff Program at consumer events, in the classroom, and online.

Vraspir is the daughter of Judi and Gene Vraspir of Emerson.

More information about the program and the other 2010 national ambassadors is at www.beefboard.org/news/091013AmbassadorRelease.asp.

Family and Consumer Sciences

Mark Bittner, director of the Early Care and Education Center (ECEC), received word the ECEC has been accredited by the National Association for the Education of Young Children for all programs, infants through school age.

“**Mark, Nikki Baldwin, Tracy Goodspeed**, and the teachers at the ECEC are to be recognized for their exceptional programming, documentation of student learning, and social and emotional support they give to children in their care and their parents,” says Professor **Karen Williams**, head of the Department of Family and Consumer Sciences.

Accreditation is from November 17 through December 1, 2014.

Associate Professor **Sonya Meyer** in August was the invited keynote speaker at the Association of Southeast Asian Nations’ Collaboration on Sericulture Research and Development Conference in Bangkok, Thailand. The topic for her talk was “Thai Silk –Fashion Design and Marketing.” Five faculty and ministry members from Thailand visited the University of Wyoming September 4 to discuss potential faculty and student exchanges, led by **Meyer** and **Shawn Bunning**, project coordinator in the



Becce Birdsley

Cheney International Center.

Associate Professor **Roger Coupal**, agricultural and applied economics, Associate Professor **Terri Rittenburg**, College of Business, Department of Management and Marketing, and Associate Professor **Mark Peterson**, College of Business, and **Karen Williams** attended the session.

FCS Associate Professor **Bruce Cameron**, Professor **Donna Brown**, and assistant lecturer **Treva Sprout** provided a tour of the textiles and merchandising classrooms, designs, and exhibits.

“Many thanks to **Anne Leonard**, College of Agriculture and Natural Resources relations officer, and **Anne Alexander**, director of the Office of International Programs, for their support,” Williams says.

FCS faculty and staff members were recently recognized for achievements. **Christine**

McKibbin, assistant professor of psychology with a joint appointment in FCS, received a College of Arts and Sciences Extraordinary Merit in Research Award. **Donna Brown** received first place for her garment “Autumn Breezes” at the International Quilt Festival in Houston, Texas, October 15-18. **Becce Birdsley**, FCS project coordinator for the U.S. Department of Agriculture’s Food Safety grant and a graduate student in nutrition, received a National Environmental Health Association Certificate of Merit for contributions to the organization through her work on designing the food safety training Hazard Analysis and Critical Control Point for small non-meat processors.

Molecular Biology

Before reading on, think back to that time you accidentally walked into a spider web. Remember flailing around, trying to rid yourself of those sticky silk threads? The more you thrashed, the worse it got?

Research by the molecular biology team of Professor **Randy Lewis** found that adhesive proteins in web glue are the culprit – that a spider’s ability to capture prey in its web depends as much on the glue that coats silk fibers as the strength and elasticity of the fibers themselves.



Professor Randy Lewis

The American Chemical Society (ACS) reports the research helps unlock the long-standing mystery about the secret of spider web glue, and the findings are an advance toward a new generation of bio-based adhesives and glues that could work better in some applications, including medical, than petroleum-based glues available today.

The Lewis team identified two adhesive glycoproteins (proteins with attached sugar residues) in the glue of three species of spiders.

Cloning may enable large-scale production of the glycoproteins, which could ultimately lead to the development of new bio-based, or “green,” glue for a variety of purposes.

“There are suggestions the glue could be stronger than traditional two-part epoxy,” Lewis says. “Because the glue is ‘green’

and involves no chemicals, there's the possibility it could be tolerated in the body and used for medical applications."

The glue, Lewis adds, may have more flexibility than epoxy, which could add to its importance in medical and other applications.

The team has submitted an application for a patent that focuses on using the glycoproteins to develop new glue, and its research was published in the September 4 online edition of the ACS journal *Biomacromolecules* (<http://pubs.acs.org/doi/abs/10.1021/bm900681w>).

Lead author is **Omer Chores**, a former post-doctoral researcher in the Lewis lab who spent four years on this project. He is now an educator for the Israeli government.

Chorseh completed the studies with Lewis and student **Battuya Bayarmagnai** in July 2008 and then went to work summarizing the findings.

Bayarmagnai earned a bachelor's degree in molecular biology from the University of Wyoming in 2008 and is now a graduate student at the University of Chicago.

For more on their research, see the October issue of *Agademics* at www.uwyo.edu/uw-expstn/Agademics/Oct09.pdf.

Plant Sciences

Assistant Professor **Axel Garcia y Garcia** is the latest addition to a rapidly evolving plant sciences faculty, says Associate Professor **Steve Herbert**, head of the department. Garcia y Garcia began work at the Powell Research and Extension Center October 30, filling the position from which Professor **Alan Gray** retired more than a year ago. Garcia y Garcia earned his Ph.D. in agronomy and crop sciences at the University of Sao Paulo, Brazil, and completed an impressive period of post-doctoral research in the Department of Biological and Agricultural Engineering at the University of Georgia, says Herbert. He has broad expertise in many aspects of irrigation technology, plant water use, and water management. "Water management for agriculture is extremely important in Wyoming, and Axel brings much-needed expertise to the Powell area and to the state as a whole," notes Herbert.

In previous Ag News issues, the plant sciences department announced the hires of Jennifer Vollmer and Steven Keeley to fill open positions in invasive weed management and the directorship of the Sheridan Research and Extension Center, respectively. Both Vollmer and Keeley elected to pursue other opportunities before report-



Assistant Professor
Axel Garcia y Garcia

ing for duty at UW. Assistant Professor **Brian Meador**, a UW graduate, was hired to fill the invasive weed science position and began work November 2. The director's position at Sheridan remains vacant but offers to other candidates for this position are in progress. "We've hired five assistant professors since the fall of 2007 and all are making a good start," notes Herbert. "With continued effort, I believe we can fill the Sheridan director's position with an excellent candidate; it will just take a little more time than we had planned on. I've come to understand that individuals with advanced degrees and good training in applied agricultural science still have employment options despite high unemployment generally. This is good news for our students."

Renewable Resources

The House Agriculture Committee and the National Institute of Food and Agriculture (formerly Cooperative State Research, Education, and Extension Service) invited Professor **K.J. Reddy** to provide information on the arsenic status in natural waters. Reddy and his graduate students have gathered extensive data on arsenic in water from both natural and anthropogenic sources and developed a novel arsenic removal technology. The *Nanotechnology* journal invited him to write a review article on current status of arsenic removal technologies titled "Recent Advances in Arsenic Removal Technology."

Hollis Weber, master's student advised by Reddy, presented on the "Mineralization of Carbon Dioxide from Coal Combustion Process Flue Gas" at the 7th International Carbon Management Conference.

Undergraduate students **Leena Horton**, **Rives White**, **Landon Smith**, **Katie Nelson**, **Amanda VanPelt**, **Kayla Bish**, **Amanda Jones**, **Sydney Burek**, **Emily Wotkins**, **Travis Decker**, **Haley Lockwood**, **Katie Schade**, **Tyler Gardner**, **Tate Smith**, **Rollin Winter**, **Kellen Smith**, **Sage Askin**, **Wade LaCount**, **Ticia Shelton**, **Michelle Sutherburg**, **Meghan Reedy**, **Cody Weatherly**, **Jordan Wambeke**, and **Karley Shepperson** attended the Wyo-



Assistant Professor
Jeff Beck

ming Section meeting of the Society for Range Management to compete in the plant identification and the Undergraduate Range Management Exam competitions.

The faculty has been receiving many grants in the last few months totaling more than \$1.6 million. Assistant Professor **Jeff Beck** will work on pronghorn antelope and elk responses to wind energy development and expand his work on sage grouse habitats. Professor **David Williams** will continue his work on global change on rangelands and was the leader in getting a mass spectrometer for use throughout campus. Post-doctoral research scientist **Holly Barnard** received funding to look at evapotranspiration using isotopes. Professor **George Vance** is beginning work on the use of displaced saline waters. Professor **Scott Shaw** will be surveying aquatic

beetles. Professor **Scott Miller** received funds to develop a model to predict occurrences of the Rift Valley fever virus. Associate Professor **Tim Collier** received an increase in funding for work in biological control of weeds. Assistant professor **Jay Norton** will be studying organic farming in the High Plains. Professor and department head **John Tanaka** received funding to support the Sustainable Rangelands Roundtable.

Veterinary Sciences

Department of Veterinary Sciences Assistant Professor **Chaoqun Yao's** research relating to leishmaniasis is gaining recognition by the international science community. The disease is caused by protozoan parasites belonging to the genus *Leishmania* and is transmitted by the bite of certain species of the sand fly.

A manuscript by Yao on proteins that play a significant role in causing leishmaniasis was published in the American Society for Microbiology's journal *Infection and Immunity*. The online edition is at <http://iai.asm.org/papbyrecent.dtl>.

The paper focuses on major surface protease (MSP), which Yao has been studying for nearly a decade. MSP proteins play distinct roles in *Leishmania* pathogenesis and other diseases caused by *Leishmania*-related organisms.

Another paper by Yao and former colleagues focusing on membrane proteins of the parasites that cause the disease was accepted in September for publication in Wiley InterScience's journal *Proteomics – Clinical Applications*.

The disease is potentially fatal in humans and animals. Most of the cases in the U.S. involve dogs, says Yao, who notes there have been confirmed cases in 21 states, though none in Wyoming.

Approximately 1,300 American troops serving in Iraq and Afghanistan have been diagnosed with leishmaniasis, which is typically found in Asia, Africa, Europe, South America, and Central America with indigenous human cases in Texas, he says.

"My interest is trying to find the virulence factors in the plasma membranes of the parasites that cause the disease. If we can indentify those factors, we could possibly manipulate the parasites themselves, which would help in the effort to develop a vaccine," Yao says. "There are some vaccines for animals but none for humans."

A native of China, Yao earned a bachelor of medicine degree from Tongji Medical University in Wuhan, China, in 1986, and a Ph.D. in veterinary parasitology from the University of Georgia, Athens, Georgia, in 1995.



Assistant Professor
Chaoqun Yao

He was a postdoctoral researcher at Washington State University-Pullman, and he held a similar position at the University of Iowa before being promoted to assistant and then associate research scientist. He also was a researcher and health science specialist at the U.S. Department of Veterans Affairs' Iowa City VA Medical Center.

Yao has been at the University of Wyoming since August 2008. In addition to his parasitology research, he teaches veterinary entomology/parasitology, medical entomology/parasitology, and problems in parasitology.

He also team teaches microbiology and infectious diseases with veterinary sciences Assistant Professor **Gerry Andrews** and molecular biology Professor **Don Jarvis**. This class is for students in the WWAMI medical program, short for Washington, Wyoming, Alaska, Montana, and Idaho.

Agricultural Experiment Station

Note: *The following was written by Stephen D. Miller, College of Agriculture associate dean and director of the Wyoming Agricultural Experiment Station. Miller is retiring in January after working in the College of Agriculture for 26 years.*

This is my last update as director of the Wyoming Agricultural Experiment Station (AES) as I will be retiring. The four research and extension (R&E) centers have undergone major changes that have been designed to strengthen their ability to address your needs. This will continue in the future with strong leadership.

Early fall weather was more like winter as several arctic blasts hit the state. The weather not only shortened Wyoming's fall beauty but also presented numerous harvest problems, especially for sugar beets, in the northern part of the state. Growers were on their way to record yields before this occurred.

Scott Miller, an assistant professor in the Department of Renewable Resources, is working part-time in the AES office this year as a LEAD 21 participant. Miller is in the process of inventorying major research equipment in college departments that can be shared. This will increase the college's research capabilities and in-



*AES Director
Steve D. Miller*

crease research collaboration across disciplines.

The AES competitive grants program continues to remain strong. This program is designed to serve as seed money for novel ideas affecting agriculture. This fall, 21 proposals from across campus were received. Four to five grants totaling more than \$200,000 were to be awarded this year. I hope in the future this number can be doubled.

Steven Keeley, who was hired to replace Justin Moss as director of the Sheridan R&E Center, did not report to work September 28 as planned. The search is in progress. This individual will have statewide responsibilities for turf grass management and will teach in the third-year agroecology program (a shared venture between the University of Wyoming and Sheridan College).

Axel Garcia y Garcia has been hired as an agronomist/

irrigation specialist at the Powell R&E Center. **Garcia y Garcia** will provide much needed information on irrigation management statewide and has familiarity with flood, sprinkler, and drip systems.

Jack Cecil, a long-time research associate at the R&E center at Torrington and now at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC), retired October 30. A search for his replacement is underway. This position is designed to assist researchers with the baseline systems and establish an independent program in some phase of agroecology.

Several major improvements continue to proceed at the Laramie R&E Center. We just completed construction of a new pellet mill facility capable of formulating pellets for all feed trials being conducted at both Laramie and SAREC. In addition, only one section of the research greenhouse still needs to be fitted with Johnson Controls Inc. panels. Two were completed this fall before cold weather set in.



Betty Greear

Cooperative Extension Service

Tabitha Fleak joined the UW Cooperative Extension Service in Sweetwater County August 24 as the 4-H/youth educator. A May 2008 graduate of UW, she has a bachelor's degree in dietetics. Fleak is an alumnus of the Fremont County 4-H program, in which she completed a 4-H internship.

Josefina Ibarra assumed the West Area educator for nutrition and food safety position effective September 17 based in Rock Springs. A native of Mexico, Ibarra has a bachelor's degree in dietetics from the University of Texas Pan-America and is a certified registered dietitian.

Milton Geiger began September 14 as the energy extension coordinator. An August 2009 graduate from the College of Agriculture with two master's degrees in agriculture and applied economics and natural resources, he will coordinate all

energy outreach efforts. This is a new position jointly funded by the School of Energy Resources and CES.

Arlowe Hulett, retired county agent for Albany County, was honored at the National Association of County Agricultural Agents annual convention in Portland, Oregon, in September. He was the recipient of the association's prestigious Hall of Fame Award for his long extension career and service to the national association as treasurer.

Betty Greear, Centi\$ible Nutrition Program educator in Natrona County, was recognized March 9 in Washington, D.C., as the Western Region Expanded Food and Nutrition Education Program (EFNEP) Paraprofessional winner. Greear was one of eight educators across the country to receive the award during the 40th anniversary celebration for EFNEP.

Academic and Student Programs

Thirteen College of Agriculture freshmen recently completed their first semester at the University of Wyoming as part of the new Critters and Communities freshman interest group (FIG).

"A FIG is a living and learning community in which first-semester students take three or four courses together and live together on a designated floor in the residence halls," says **Laurie**



*Associate Dean
Jim Wangberg*

Bonini, senior office associate in the College of Agriculture's Office of Academic and Student Programs.

Jessica Willford, University of Wyoming FIG coordinator, says, "A maximum of 20 students can enroll in a FIG, and it is really good for a new FIG to have 13."

Associate Dean **Jim Wangberg**, director of the Office of Academic and Student Programs, started Critters and Communities.

Students in the FIG were enrolled in AECL 1000 (agroecology), COJO 1020 (communication and civic engagement), and the anchor course, AGRI 1001 (intellectual community and information literacy in agriculture).

COJO 1020 is offered through the Department of Communication and Journalism in the College of Arts and Sciences while the other two are through the College of Agriculture.



*Senior Office Associate
Laurie Bonini*

Dave Wilson, a senior lecturer in the Department of Plant Sciences, teaches agroecology, while Wangberg leads AGRI 1001.

The anchor course is a freshmen seminar designed to introduce students to the various issues and disciplines encompassed by the College of Agriculture.

"Each week, students interacted with guest speakers from across the college and from the agricultural community, and they learned about the diversity of fields included under the umbrella of agriculture," Bonini says.

"By sharing multiple courses and a living environment, the students create a bond within the FIG. The instructors of the three courses work together to reinforce shared concepts and create shared assignments, encouraging students to bridge connections across the courses.

Students who participate in FIGs report the experience made their transition to college life easier," Bonini adds.

Incoming freshmen can also choose to participate in the Exploring Animal and Veterinary Sciences FIG or, beginning with the 2010 fall semester, a new FIG called Discovering Careers in Veterinary Medicine.

"There has been a high demand from animal and veterinary science students for FIGs so adding the additional one will assist students who plan to go to veterinary school," Bonini says. "It will help them stay on track to obtain some of their higher-level science classes early."

Willford says Exploring Animal and Veterinary Sciences fills each year with the maximum number of students, and she believes there will be similar interest in Discovering Careers in Veterinary Medicine.

Ag students may also participate in Sure Start, a learning community that includes three clustered courses within a major but does not include the residential component.

The FIG Web site is at www.uwyo.edu/figs.

For more information about learning communities in the College of Agriculture, contact Bonini in the Office of Academic and Student Programs at (307) 766-4034 or lbbonini@uwyo.edu.



AG NEWS

College of Agriculture and Natural Resources

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PROGRAM NOTES

College Relations

The Internet is a great way for alumni, students, and friends of agriculture to stay in touch with the College of Agriculture says Anne Leonard, college relations officer. Social networking is the latest way to stay in touch. For those on Facebook, did you know there are several Facebook pages from the college? Become a fan and learn more about current happenings in the college. Find us by searching for Wyoming agriculture in Facebook

and looking for our logo, and by searching for University of Wyoming to see other pages. Many of those pages have Favorite Pages you can click on to visit. There are also Twitter members who are following the University of Wyoming. For those using TweetDeck, type University of Wyoming in the search function to see tweets about the university and colleges.

The college Web pages will undergo a facelift this year, and we are looking for suggestions

from alumni and friends. Prospective students, alumni, and those seeking information on agriculture-related programs need to be able to quickly find information they are searching for. If you have not been on our Web pages recently, please take a minute to check us out – www.uwyo.edu/UWAG. Please share your thoughts, compliments, and frustrations about our current Web pages as well as your suggestions for improvement. Send comments to agrdean@uwyo.edu.



Anne Leonard