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Two Powell graduates are renowned
UW spider silk researchers

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COLLEGE OF AGRICULTURE

AG NEWS ^{UW}

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"Life is a classroom in which each of us is being tested, tried, and passed."

Robert Thibodeau

Dear Friends and Colleagues,

Winter is upon us. I hope all your preparations for winter and the spring calving season are underway.

I am reminded at this time of year learning is a lifelong process. It obviously begins in the home with parents and caregivers. Then, through grade and high schools, more formal education ensues. For many, formal training continues into college or vocational programs. For some, graduate and professional schools follow college; however, acquisition of new knowledge is a lifelong need.

The College of Agriculture has, as one of its primary motivations, programs that stimulate a thirst for learning. Hopefully, this thirst leads our students to thrive and lead throughout their lives.

We have animal science program graduates who are successful bankers. Some agricultural business graduates are successful attorneys. We featured one alumnus who started in agriculture and ended up the chief financial officer and head of technology at a major



Dean Frank Galey

(Continued on Page 2)

UNIVERSITY
OF WYOMING



“The College of Agriculture strives to provide all lifelong learners with the opportunity to grow in their fields in Wyoming and beyond.”

corporation. These individuals all point to their learning skills, thirst for new ideas, and ability to learn as key attributes picked up as part of their education at UW.

The College of Agriculture strives to provide all lifelong learners with the opportunity to grow in their fields in Wyoming and beyond. The UW Cooperative Extension Service has offices in each county and the Wind River Indian Reservation. Our educators have focus areas that range from educational material and applied research about agriculture, restoration of disturbed lands, small acreages, your horticultural questions, weeds, community leadership, youth development, nutrition, and many other topics. We are also now developing expertise about energy in the state. Specific information is being developed for the public about enterprise-level wind and solar energy, energy efficiency in the home and business, reclamation of disturbed lands, and coping intelligently with the impacts of energy-related growth in our rural communities.

Despite the wide areas of local expertise, we do not have a “not-invented-here” mentality in the extension service. We have connections with the literature, other departments at UW, and other colleges and federal agencies. If we don’t have the answer to your question, we can help you find an answer.

How do you access the extension service? The best way to approach a single question or issue is to go to, or call, one of our many county offices or a local research and extension center. You can also find publications on a wide variety of subjects online. If you have general interest in a subject, also please look for programs offered throughout the state on subjects ranging from proper nutrition on a limited budget, to rangeland monitoring, or how to be the best steward of your small acreage. The last part of our name, extension service, is service. Please let us know how we might best help you on your quest for lifelong learning.

I would hope this newsletter is also a way to get information to you about topics of interest. In this issue, in addition to general program updates, you will find features about the Powell origins of our renowned spider silk research team, how research about bats may lead to important biomedical information, community development ongoing in Wamsutter (a community very affected by energy development), and the Wyoming Reclamation and Restoration Center. There are also articles about internships helping faculty members in the college grow, conversion of one of our old barns into a community center in Uinta County, and how a conference on health is still having an impact.

I hope I have the opportunity to see many of you in the next few weeks as I attend various meetings and events. Thank you for your continued support of your college! We can be contacted at (307) 766-4133 or by e-mail at agrdean@uwyo.edu. Our Web site is <http://uwadmnweb.uwyo.edu/UWag/>.

Dean Frank Galey
College of Agriculture

FIRST CUTTING

Mortar Board names Top Profs in College of Agriculture

Seven College of Agriculture faculty members were named Top Profs by the Mortar Board Cap & Gown Chapter.

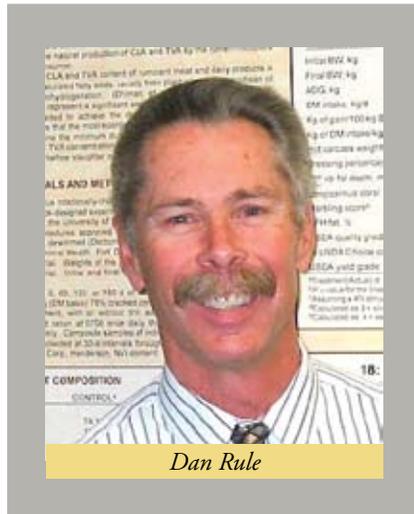
The faculty members were honored November 3.

“Being selected as a ‘Top Prof’ is a great honor for faculty members because they are chosen by the students,” says College of Engineering Professor David Whitman, Mortar Board adviser.

College of Agriculture Top Profs and the Mortar Board members, and their majors, who nominated them, are:

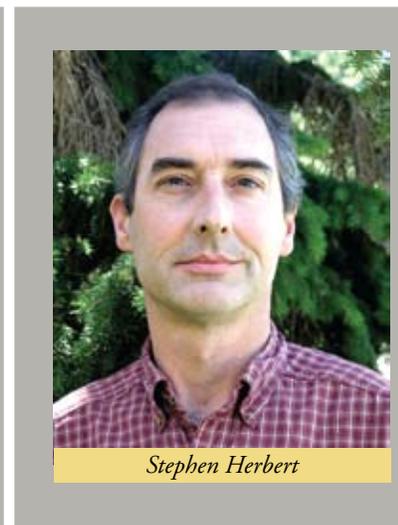
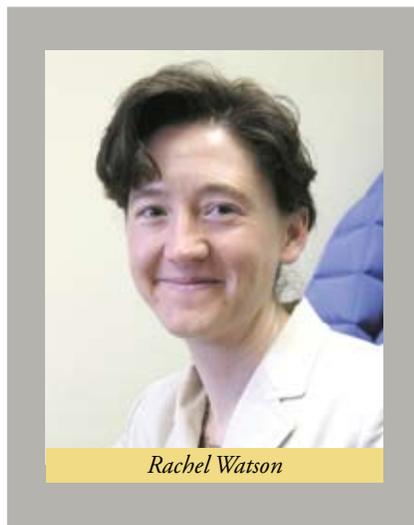
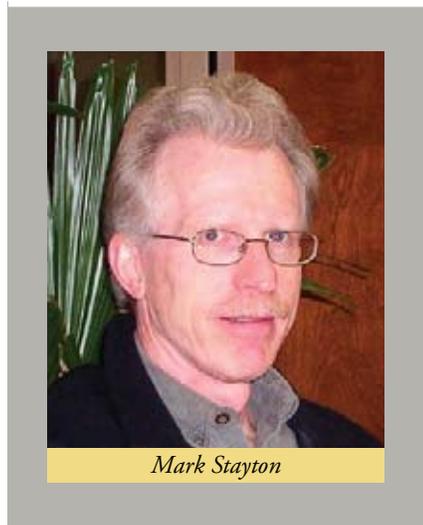
Department of Animal Science

- Professor Dan Rule; Kassi Bauman, animal and veterinary sciences (ANVS), Cheyenne.



Department of Molecular Biology

- Associate Professor Pamela Langer; Jess Anderson, molecular biology (MOLB), Grand Junction, Colorado.
- Associate Professor Mark Stayton; Kimberly Cranford, MOLB and zoology/physiology, Alpine.
- Assistant Lecturer Rachel Watson; Nicole Steffes, microbiology (MICR) and MOLB, Vale, South Dakota.

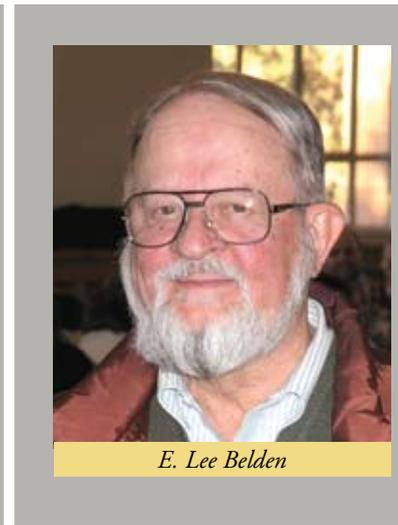
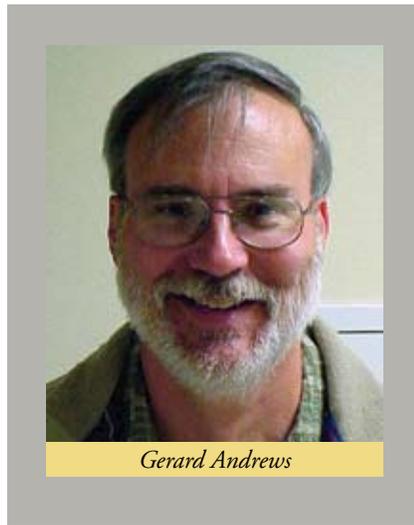


Department of Plant Sciences

- Associate Professor Stephen Herbert, botany, head of the Department of Plant Sciences; Carly-Ann Anderson, biology, Cheyenne.

Department of Veterinary Sciences

- Assistant Professor Gerard Andrews; Keegan Harkins, MICR, Scottsbluff, Nebraska.
- Professor E. Lee Belden; Sandra Smylie, MICR, Douglas.



FIRST CUTTING



UW President Tom Buchanan presents the grand champion ribbon for the Champion of Champions Market Lamb Challenge to Beth Wood, an FFA member from Pine Bluffs, during the Wyoming State Fair and Rodeo.

University president, ag college dean visit Wyoming State Fair

University of Wyoming President Tom Buchanan and UW College of Agriculture Dean Frank Galey attended the Wyoming State Fair and Rodeo in Douglas on Wednesday, August 13.

Buchanan and Galey hosted an ice cream social open to the public at the College of Agriculture booth in the Ag and Natural Resource Center. Buchanan presented the grand champion and reserve champion ribbons at the Champion of Champions Market Lamb Challenge.

The College of Agriculture booth highlighted current research and programs, including aquaculture, fetal programming, human nutrition, spider silk studies, small-acreage management, and many others.

Randy Weigel and

Randy Weigel, human development specialist with the University of Wyoming Cooperative Extension Service (UW CES), and Extension Educator Bridger Feuz were presented the top UW CES awards at the Extension Professional Improvement Conference.

This year's conference, "Change – Empowering Extension," was last fall in Sheridan.

Glen Whipple, associate dean in the College of Agriculture and director of UW CES, presented the Jim DeBree Excellence in Cooperative Extension Award to Weigel during the awards banquet.

The DeBree award – the most prestigious honor in UW CES – is presented to those who demonstrate a high level of professional performance and leadership within their program areas and communities. It is named for Jim DeBree, who worked with Montana and Wyoming extension for 33 years and directed UW CES from 1988 to 1995.

Whipple presented the Newer Employee Recognition Award to Feuz, who joined UW CES in October 2004. Feuz, who works out of the Uinta County office in Evanston, is part of the state Profitable and Sustainable Agricultural Systems (PSAS) initiative team.

Weigel joined UW CES in December 1986. In addition to his extension duties, he is a professor in the Department of Family and Consumer Sciences.

Those writing nomination letters say Weigel is a leader, visionary, and team builder who helped guide and coach educators and clientele across the state and beyond.



Bridger Feuz earn top UW CES honors



Professor Randy Weigel

They say the Jim DeBree award is especially meaningful for Weigel because he worked side-by-side with DeBree, helping to strengthen extension programming in Wyoming.

Weigel says, "Receiving this award is an honor for me. While serving as associate director for Jim, he was always an inspiring teacher and mentor and, most importantly, a good friend."

Supporting individuals and families in transition best describes Weigel's extension work, according to the nomination packet. His programming helps Wyoming and Western agricultural producers and rural families cope with issues such as stress, drought, rural mental health, and disability.

Weigel is director of Wyoming AgrAbility: Promoting Success in Agriculture



Extension educator Bridger Feuz

for People with Disabilities and Their Families, a U.S. Department of Agriculture-funded program.

A professor and extension specialist at Colorado State University who has collaborated with Weigel says he knows of no one else who, for more than 30 years, has helped ranchers and farmers better deal with psychological issues. He calls Weigel a "man of integrity."

Nominators within UW CES say Weigel brings outstanding personal qualities to his position, including a strong work ethic, generosity, flexibility, courage, and sense of humor.

Weigel emphasizes, "I consider it an immense privilege to work with such great extension colleagues in my 20-plus years at UW."

Jim DeBree award recipients receive \$1,000.

Feuz says of his award: "UW has such a strong group of newer employees, many of whom make me a better educator, that I am very honored to receive this recognition. It means even more to me that the nomination came from my peers."

Nominators say Feuz works hard to help other educators and constituents, and he puts in the "extra effort" needed to ensure programs of the PSAS initiative team are a success.

"For his relatively short time with UW CES, Bridger has had significant impacts on the communities he serves and on the teams on which he participates," a nominator states. "Bridger has served as an impetus for program development and delivery on the PSAS team by heading up the Master Cattleman program development and shepherding this program as it has become one delivered by multiple area educators across the state."

Another nominator says one of Feuz's greatest assets is his ability to "see the big picture. He also brings a good attitude to meetings and workgroups. He is well liked by colleagues and garners much respect from peers. When Bridger takes responsibility to do something, he always carries through."

Feuz adds, "I hope to be able to keep up the good work. Luckily, I really enjoy my work here at UW and look forward to a successful career."

Internship creates opportunities for Department of Family and Consumer Sciences

A quarter-time internship with the Office of Academic Affairs has opened a win-win situation for two members of the Department of Family and Consumer Sciences.

Professor Karen Williams, who is head of the department, is participating in the internship through a Marvin Millgate University of Wyoming Endowment Fund, which supports academic enhancements across campus. In addition, Associate Professor Bruce Cameron applied for and accepted an administrative internship within the department. He is the acting department head when Williams is out of the office, is leading the department's electronic portfolio pilot project, and is focusing on departmental budget processes.

The internship is through July 1, 2009.

"This is a remarkable opportunity," says Williams, who so far:

- started a campus-wide electronic portfolio pilot project for possible platform adoption by the university,
- chairs the position search for the assistant director of the Wyoming Conservation Corps in the School of Environment and Natural Resources,
- helped draft a request for proposals for a UW Alumni Association faculty growth and development grant to Faculty Senate,
- serves on the NCAA Certification committee's Gender/Diversity Issues and Student-Athlete Well-Being Subcommittee,
- attends weekly staffing meetings with the provost and his group; and
- attends dean and director's council meetings.

"It's fantastic," she says. "I'm learning so much. It also fits perfectly with Creation of the Future 3 and its emphasis on faculty leadership development. When I saw the request for proposals for the Millgate Endowment, it looked too good to pass up."

Williams is also the director of the Bachelor of Applied Science program at UW. She says being exposed to cross-campus opportunities allows her to see beyond the landscape of her department head position.

"I have the opportunity to see an institutional perspective – a broader picture of how a university operates and how decisions are made. It is giving me insight into the kinds of issues that come, and it gives me the wonderful opportunity to be mentored by highly successful men and women."

She adds the opportunity will help her be more effective as a department head and in how she can support the college while expanding the number of future opportunities.

One-quarter of her teaching load was bought out for this internship. Part of Williams's proposal was that the money returned to the college through the endowment for her course buy-out would support one or more people in the department who wanted to learn more about leadership, particularly department head responsibilities. Cameron wrote the successful proposal.

Cameron says he applied for the internship to learn what a leadership position entails.

"I believe this will be helpful for my professional growth as perhaps one day I would like to step into an administrative role," he says. "It is well known many faculty members, when they take on an administrative role, have had no prior formal training in what it takes to be an administrator."



Professor Karen Williams



Associate Professor Bruce Cameron

Cameron, who has dealt with budgets while serving on a local school board for several years, will become immersed in the department budgetary process.

Williams says one of her goals was to help the faculty benefit from her opportunity.

"I'm delighted Bruce submitted a proposal to Dean Frank Galey, and I think what he and I are doing fit well with the focus in Creation of the Future 3 on faculty/professional leadership development."



Economist joins staff at UW's SAREC research facility

A new member of the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) team near Lingle may well ask researchers immersed in data “Where’s the dollar?”

John Ritten began Aug. 19 as assistant professor in production economics/systems analysis, a position planners of the facility have said will complete the integrated systems strived for at SAREC with its livestock, crop, and pasture capabilities.

SAREC is one of four research and extension centers in Wyoming that are part of the UW Agricultural Experiment Station.

“I’m working with researchers to put the economic aspect on the plant and animal research to really nail down the impact on producers and their bottom line,” says Ritten, who recently received his doctorate in agricultural economics from Colorado State University. “The goal of SAREC is sustainable agricultural research, but we need to determine whether the practices can be profitably implemented by producers. So, unless we can show the value to producers, these new practices may never be put into place.”

Having an economist at SAREC is key to making the integrated research work, notes Larry Cundall, chairman of the SAREC advisory board. Cundall was a member of the original review committee that created the SAREC mission almost a decade ago.



Assistant Professor John Ritten

“From the beginning, that was the part we thought would make this gel,” says Cundall, a Platte County producer. “That’s the part producers needed to make all the parts work together.”

Ritten says various crop and livestock research can be adjusted to different input and output prices and management strategies.

SAREC’s interaction with various disciplines drew Ritten to the position. “I can be involved in research at its inception and

answer pertinent questions for the local area as opposed to being in a university building where everyone has great research projects, but not many others know about them,” he says. “This gets me out there with people who can utilize our findings.”

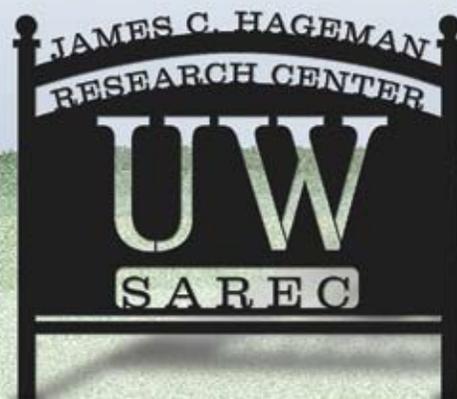
Ritten joins the faculty at SAREC that includes Jim Krall, director of research, and Steve Paisley, beef cattle specialist (www.uwyo.edu/uwexpstn/SAREC.asp). Both carry extension responsibilities.

“SAREC is also extension based – every producer is another researcher,” says Ritten. “They can answer a lot of my questions, and they can raise a lot of pertinent questions – questions I never thought to ask. Research should be driven to meet community needs.”

He will also work with UW students to show how economic analysis can be incorporated into their research.

Ritten, a Rapid City, South Dakota, native, is no stranger to Wyoming. While at CSU, he taught courses for UW, and his dissertation looks at interactions between cattle and rangeland in Wyoming under different management strategies during periods of drought. He received his bachelor’s degree in marketing from Arizona State University and his master’s of business administration from New Mexico State University.

His wife, Chian, is pursuing a doctorate in economics at CSU.



Development efforts generate retail structure,

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

Want to know if anything has been happening in Wamsutter community development?

Turn off the rush of I-80, turn into the community past its WAY outdated “Population 68” sign, take a left at the T, then turn at the first right.

Stand on the corner of Fultz Drive. New galvanized fence surrounds a modern playground and skate park anchored to the future on the east by a new day-care building. Inside, there will be more than a dozen or so kids ready to exchange energy at any visit.

Turn left and head south on Tierney, and new homes are being built on a 6.5-acre development. Turn west onto Bonney Avenue, and a new fourplex is nearing completion by a developer who relocated to Wamsutter from Michigan.

By the end of 2008, plans were to be set to construct Wamsutter’s version of a strip



Lisa Colson started as extension community developer in Wamsutter in November 2006.

mall – a retail building housing a grocery, bank, and Laundromat with additional retail space available.

Another eye-opener: Its first “the doctor is in” sign could be hung this year.

A crowd that included Governor Dave Freudenthal gathered September 17 in Wamsutter to celebrate its progress.

“The important thing is to recognize what has transpired here,” Freudenthal told the crowd of about 200 as noted in the *Casper Star-Tribune*. “Some really amazing progress has been made, and the community can be really proud of itself. You’re

getting it done, and it’s been a remarkable story when you think about how far you’ve come just since 2002.”

Research by the Woods Cross, Utah, consulting firm BearWest found the most important action taken for Wamsutter’s future was creation of the community developer position. Freudenthal started that process with a request to Glen Whipple, director of the UW Cooperative Extension Service (UW CES) and associate dean in the College of Agriculture. A partnership of public and industry partners coalesced to fund the position.

Lisa Colson is the town’s community development person, the first-ever such position in the UW CES. She moved from Missouri with her daughter two years ago. “Wamsutter is professionally very satisfying, a constant challenge,” she says. “You don’t get stuck with daily, mundane tasks.”

The days are 8, 12, 14 hours or more, and she has now taken steps to take breaks from the workload. “I could do this job 24/7. The demand is there,” she says.

Nonprofit Development Organization Creation

Creation of the town’s nonprofit development organization, Wamsutter Community Inc. (WCI), has taken on tasks the strapped-for-time town government can’t. It is the fiscal agent for the new day-care, and its members set up a sustainable budget for its operations.

WCI received a grant from the Wyoming Department of Family Services (DFS) to develop an after-school youth program to promote life skills, education and cultural opportunities, and provide mentoring to Wamsutter youths. DFS awarded \$135,000 to ensure the personnel budget for two years. WCI then developed a two-year budget and successfully raised



Children attending the Wamsutter Little Ranch Hands Child Care Center include, front, from left, Caydance Pipes, Karl Spencer, Katelynn Englehart, Breaden Cash, Dominic Seacrest, Kayli Phipps, and Isabella Schoemer. Back, Bailey Pipes, and staff members Adrianna Hotchkiss and Kayla Beauchamp.



wellness clinic plans for Wamsutter



A recreation area that includes playground equipment and a skate park was constructed just west of the day-care building.

more than \$60,000 for start-up and general administration costs for the two years of operation.

A local board of directors was also formed. “All nine people are under the age of 40, all are involved in the community, and all have taken the reins,” says Colson. Its members do more than provide direction. Some of the children at the local school needed shoes, and each member volunteered to pay for them privately.

“Each member of the board stepped up and said there was no reason for WCI to fund it; we’ll pay for it ourselves – especially since most of our funds are restricted, and currently we only have \$400 of unrestricted funds for granting purposes. Everyone donated around \$80 to do this. They are wonderful, well-meaning individuals serving the community,” she says.

Industry Partners Vital

Industry partnerships are the lifeblood of Wamsutter’s betterment. Recently, BP America announced a \$1million endowment to WCI for the day-care and another \$500,000 endowment donation to WCI to be used for any type of community development.

The day-care is an important element in creating community sustainability. “For example, I wouldn’t have been able to take this job if not for a day-care,” says Colson, whose daughter attends an after-school program there. “It’s open 6 a.m.-6 p.m. – those are the hours these families need. If we didn’t have it, you would see less people live or work here.”

There has always been a core population of about 300 to 500 – they’ve bought houses, put down roots. There is the semi-permanent, who affect the infrastructure,

who work two weeks or more and are gone two weeks at a time. Then, there is the transient workforce, probably numbering about 700-1,000, who work with a rig, and the commuters, who drive from other towns such as Rock Springs, Rawlins, Baggs, or Encampment every day.

“When you add those together, it puts a lot of stress on our infrastructure on a daily basis,” Colson says. “We’ve had families move here last year or so to make money but have also enjoyed the community, small-town life, knowing they are working for change and working for something great. Everyone in the community has a buy-in for Wamsutter’s growth and what our needs are, especially as we make housing available. That gives people a chance to know the community and gives them more time with family, but we also have to build up other amenities.”



Lisa Colson visits with builders Brian Drake, right, and his son, Greg.

Commercial Structure, Wellness Facility

WCI recently submitted a \$1.3 million Community Readiness Grant application to the Wyoming Business Council to build a commercial structure that would have a grocery bank, Laundromat, and space for two other businesses early this year.

“If you ask people on the ground what they want, they will say a grocery store,” she says. “When you contact a grocery store, store representatives ask ‘Do you have a building for us?’”

Colson and Mayor Ken Waldner are working with several contacts considering operating a grocery in Wamsutter. The town is even considering creating a cooperative grocery store – creating it through investment, and the patrons would eventually have an interest in the store as well.

“We are looking at keeping costs down,” she says. “We don’t want anyone coming in and gouging our residents. It’s important for us to have a full-scale grocery store and do so at affordable rates.”

Colson says the new year may also bring the first wellness clinic. A consulting firm surveyed the community for needs and will assist the town with finding physicians who would run the facility.

“We have a doctor who seems pretty certain he wants to be in Wamsutter and provide staff,” says Colson. “We will move

forward with the agreement and construction phase. We are in hopes of having it up and running after the first of the year.”

The building will be modular but permanent and owned by the town. WCI would have the fiscal responsibility. If the physician decides to no longer have a presence in the community, he/she can leave but the town would maintain the files.

The doctor and physician’s assistant would be at the center up to three times a week, and a nurse practitioner would be present every day. An administrator, employed by the town, would be the office manager but also act as a backup to emergency medical services billing.

“We already have \$500,000 committed from BP and Sweetwater County to building the structure and to ensure its sustainability and are seeking other funding through grants and in-kind assistance from industry during the construction phase,” says Colson.

Colson notes the greatest medical need is occupational, such as drug testing. “We have so many industry workers that would have contact with the clinic. This way, they would be here 30 minutes as opposed to having a full day off to go to Rock Springs or Rawlins. But we also get calls due to where we are located due to truck traffic. The health center would also benefit the

health of a community that has little access to healthcare, prevention measures, and education.”

The success of the Wamsutter project is a testament to the commitment and collaboration of the partners, says Duane Williams, an associate director of the UW CES. “Those include the state, led by the governor and facilitated by UW CES, city and county government, engaged local citizens investing their time, energy, and capital in creating ‘their’ community, and especially the industry partners that are committed to pursuing economic development in a manner that also fosters building a great community.”



Lisa Colson, left, with Susan Carnes, center, Wamsutter town clerk, and Linda Gerston, Wamsutter assistant deputy clerk.



Discovery by Liberles team begins to explain vampire bat evolution

By Rachel Knutson
University of Wyoming journalism major

Popular culture has made a sort-of celebrity of the vampire bat. But while the bloodsucking creatures have starred in many major motion pictures, little truth was known about the evolution or the astonishing eating habits of the common vampire bat – until now.

Department of Molecular Biology Assistant Professor David Liberles and his team have made a genetic discovery that begins to explain how the vampire bat has evolved from its fruit- and insect-eating ancestors to exist solely on a diet of animal blood. Liberles has published new research offering insight into the mysterious eating habits of this blood-feeding creature.

Liberles says the discovery demonstrates how an ecological adaptation can link a genomic event to the relative success of species.

“It is a holy grail that unites ecology and molecular biology,” Liberles says.

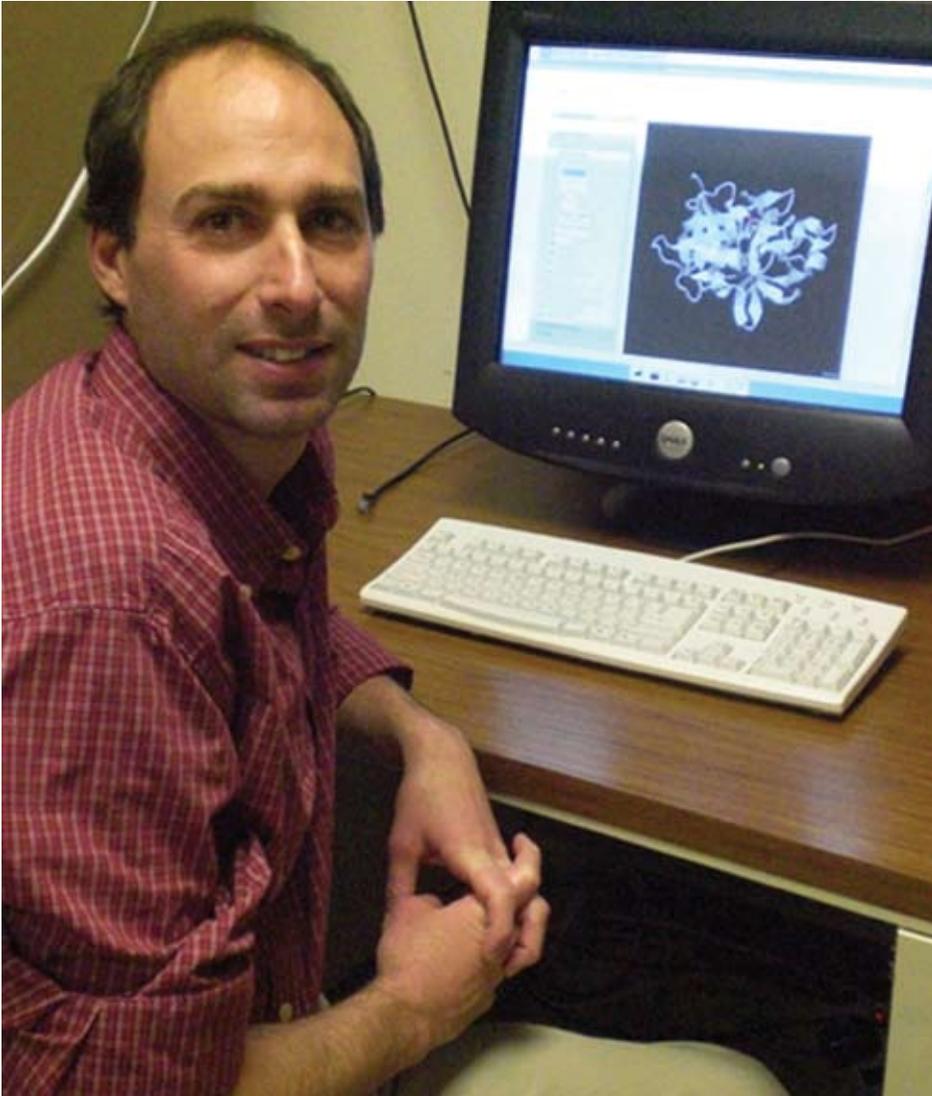
Katharina Dittmar, who helped Liberles as a postdoctoral researcher in the Department of Molecular Biology, agrees. “The research provided a good example for seeing evolution in action,” she says.

According to Liberles’s article, vampire bats are the only mammals whose nutrition depends entirely on blood. Among the adaptations necessary to exist on such a diet is the bat’s ability to keep its snack’s blood from coagulating. The plasminogen activator (PA) is the key gene that prevents the bats’ meals from curdling like spoiled milk. It essentially keeps the blood flowing.

Liberles says the PA gene is found in all mammals. In humans, it is used to prevent or break-up blood clots. The interest in Liberles’s findings lies primarily in the clinical value. There is interest in the PA gene the white-winged and common vampire bats possess. Attention is being given to the potential usefulness of these PAs in preventing heart attack and stroke in humans, Liberles says. Vampire bats express the PA gene in their saliva. This gene allows them to lap up the blood of their victims and enables their liquid diet to continue flowing from a bleeding animal.

The PA gene was found in all three species of vampire bats that Liberles and his team studied. Liberles says the earliest ancestor, the hairy-legged vampire bat

Vampire bat



Department of Molecular Biology Assistant Professor David Liberles explains the unique features of the vampire bat's saliva genes using a computer-generated 3D model of a plasminogen activator. (Photo by Rachel Knutson)

(*Diphylla ecaudata*), which feeds exclusively on birds' blood, had a PA gene similar to that of all other mammals.

The white-winged vampire bat (*Di-aemus youngi*), which prefers to satisfy its cravings on bird blood but will occasionally choose mammals as a snack, had a slight alteration in its PA gene, Liberles says. The alteration prevents a certain PA inhibitor from latching on to the PA gene; therefore, the gene is more effective in preventing blood coagulation.

The most common member of the bunch, the common vampire bat (*Desmodus*

rotundus), laps the blood of mammals only. It feeds primarily on livestock, but occasionally humans will become prey as well. The common vampire bat has developed a PA gene that, like its white-winged cousin, prevents an inhibitor from getting in the way of its blood-lapping mission; however, it has four copies of the PA gene rather than just one, Liberles says.

Liberles says the discovery of the genetic mutation, present in both the white-winged and common vampire bats, is an example of true pre-adaptation. According to his article, the evolutionary genetic change

predated the introduction of cattle to North America. The subsequent introduction of livestock allowed the common vampire bat to become the most widespread of the three vampire bat species.

While Liberles has spent a significant amount of time analyzing the creatures in the last couple years, he has not always been interested in vampire bats. He was first intrigued by the bloodsucking creatures when finishing his postdoctoral research at the University of Florida nine years ago. "At the time, I was asking: 'What makes species unique?'"

He was not the only one. The same question was being addressed, in part, by a German pharmaceutical company that had produced a gene analysis of the vampire bat's saliva. The German team was interested in the possible clinical application of the findings.

The evolutionary importance of these genes later emerged when Liberles produced a large-scale gene analysis of several different species. The study noted some species that had undergone positive selection – or showed a signal that a gene has undergone a rapid change that may correlate with a change in function. One of those signals was coming from the vampire bat.

While his interest was piqued, Liberles's official study of the bloodsucking creatures did not begin until three years later when he was working as an assistant professor in Stockholm, Sweden. Liberles began his preliminary research with Ph.D. student Asa Tellgren-Roth of Sweden. To continue her pursuit of the vampires, Tellgren-Roth followed Liberles to the University of Wyoming to help him complete the research as part of her thesis.

It was at UW that Dittmar, who is now an assistant professor at the University at Buffalo, The State University of New York, also became instrumental in the research process.

"I was able to help by generating sequence data and coordinating analyses," Dittmar says.

Liberles attributes a great amount of his success to the hard work of his student team.

“My role was mostly as supervisor – I mean it was my idea – but the actual pipette work was done by the two students,” Liberles says.

This work generated results recently published in the German scientific journal *Naturwissenschaften*, with coverage in the prominent journal *Nature* (www.nature.com/nature/journal/v455/n7213/pdf/455568a.pdf), *New Scientist* (www.newscientist.com/article/dn15083-how-vampires-evolved-to-live-on-blood-alone.html?feedId=online-news_rss20), and Dutch journal *Bionieuws*.

Liberles says having the information published was rewarding, but the research was not without setbacks.

Vampire bats are native only to Central and South America, which initially posed difficulties in obtaining samples. “Like in every research process, there are setbacks. The hardest thing was to get the samples...,” Dittmar says.

The team, instead, had to obtain samples from zoos in Germany and Japan and from Rancho Transylvania, a bat research center near Albuquerque, New Mexico.

“Having actual contact with the bats on a trip to New Mexico was a particularly significant memory (of the research process),” Liberles says. “It was something out of the ordinary compared to what we normally do here in the laboratory and on the computer.”

Obtaining samples for sequencing and evaluating was only the beginning of the research. Tellgren-Roth and Dittmar spent hours in a lab sequencing the genes of the three vampire bat species. Previously, not much of this type of vampire bat research had been completed. It was particularly tedious, Dittmar says, because there was little template to begin with.

But three years of intricate research has paid off. The team’s genetic discovery has



Katharina Dittmar

helped explain the evolution of the eating habits of the hairy-legged, white-winged, and common vampire bats. In addition, Liberles says, it provides a link between ecology and molecular biology.

This link is especially unique and important at a university like UW, Liberles says. The ecology program and Department of Molecular Biology are very separate entities on the campus, but this research demonstrates how closely they can be connected, he says. In the broader sense, the research could serve as a catalyst to bringing



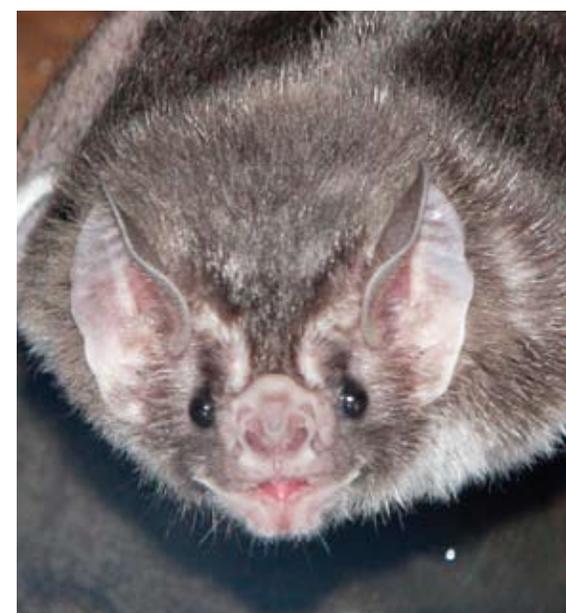
Newborn white-winged vampire bat (Photo courtesy Daniel Abram, Rancho Transylvania)

the ecology program and molecular biology department into closer contact with one another.

Despite the success, Liberles is not currently pursuing follow-up research of the vampire bat. He does not have nor has he applied for new grants for further research. “Just like anything in science, what you do depends on what you get funding for,” he says.

This is not the end of the road for Liberles. His large-scale gene study showed a variety of different species possessing a signal of positive selection. Up next: a hypothesis highlighting a gene that may have played a role in the different levels of musculature during the diversification of cattle from sheep about 20 million years ago.

Editor’s note: *Rachel Knutson, of Pierre, South Dakota, is a senior majoring in journalism at the University of Wyoming. She wrote this article in her feature writing class taught by Professor Conrad Smith in the Department of Communication and Journalism. Knutson was mentored during the fall semester by Robert Waggener, an editor in the UW Cooperative Extension Service’s Office of Communications and Technology.*



Adult vampire bat

Two Powell graduates are renowned

By Josie Lorimer

University of Wyoming journalism major
and Robert Waggener, Editor
Office of Communications and Technology

The science bug bit Randy Lewis as he carried out chemistry experiments while attending Powell High School (PHS) in the late 1960s.

A couple years later, the same bug bit another PHS student, Michael Hinman.

The two wouldn't meet for nearly 15 years, but the story of how one PHS science teacher influenced both of their lives, the story of how they ended up in the same University of Wyoming College of Agriculture laboratory, and the story of their spider silk research prove equally fascinating.

Lewis, who graduated from PHS in 1968, is a professor in the Department of Molecular Biology, where he and his team of scientists and graduate students are researching spider silk proteins in hopes of producing a superior fiber that could one



Professor Randy Lewis holds an old photograph of the late Louis Kohnke, his chemistry teacher at Powell High School. Kohnke was an inspiration to Lewis and helped develop an interest in research.



Professor Randy Lewis lets a tarantula crawl on his shoulder while research scientist Michael Hinman watches. Although Lewis and Hinman went to Powell High School at about the same time and were inspired by the same science teacher, it was not until years later they met in the Department of Molecular Biology. Lewis, Hinman, and others in the molecular biology "spider lab" are studying spider silk in the hopes of creating a superior fiber.

day be used to make artificial ligaments and tendons, improved sutures for eye surgery and nerve repair, and bulletproof vests having the potential of being stronger yet lighter than ones made of Kevlar.

Prior to focusing on spider silk proteins, Lewis concentrated his UW research on protein hormones – an area of science that fascinated a young University of Oregon Ph.D. chemistry student by the name of Michael Hinman.

Hinman – who graduated from PHS three years after Lewis – learned about the Lewis studies at UW while attending Oregon. Shortly after earning his doctorate in 1984, he sent a job application to Lewis – and was hired.

That's when the two learned they not only shared the same scientific interests but had both graduated from PHS and had both been heavily influenced by their high school

chemistry teacher, the late Louis Kohnke.

Kohnke taught at PHS from 1935 until 1976, and Lewis and Hinman were teacher's assistants (TAs) in his chemistry laboratory.

Lewis says Kohnke allowed students to get involved in experiments and "play in the chemistry lab." He added the class was fun because Kohnke, though offering guidance and answering questions, "let you do what you wanted to."

Lewis says Kohnke was a major factor in his decision to study chemistry at the California Institute of Technology in Pasadena, where he obtained a bachelor's degree in 1972. He then earned master's and doctorate degrees in biochemistry from the University of California, San Diego.

Hinman says he was equally influenced by Kohnke. "As TAs, we were encouraged to do scientific projects. We had all kinds

Photo by Josie Lorimer, University of Wyoming journalism major

Photo by Josie Lorimer, University of Wyoming journalism major



UW spider silk researchers

of fun in there,” he says.

Shortly after Hinman joined the Lewis laboratory, Lewis became interested in spider silk research while consulting with a biotechnology company in San Diego.

The research started by removing spider glands to develop a “library” of genes, Lewis says. His team then found the progression of genes and the possible makeup of proteins. Information was gathered on the genes desired for different properties.

Hinman says different silks are genetically engineered to get different properties like strength and elasticity for the cloned protein. Spiders can produce up to six kinds of silk with very different mechanical properties. These can range from strengths greater than Kevlar to elasticity greater than nylon.

The Lewis lab has cloned and sequenced genes for the proteins that comprise five of these silks.

The current research is focused in three areas, Lewis says.

The first is to determine the sequence and likely structure of the proteins for the remaining silk as well as the glue used in the web.

Second, the team is creating synthetic genes expected to have properties different from the natural silks.

Third, these silk proteins are being produced in bacteria and other systems. For example, proteins are grown in alfalfa, and they are also separated from the fats in goats’ milk.

The proteins are spun and stretched into fibers that are hoped to be stronger, lighter, and more elastic than today’s fibers.

There are many people awaiting research results of the Lewis laboratory. Among them is Evelyn Lewis of Powell, the mother of Professor Lewis. “I think the research will be

wonderful when it works out,” she says.

The research is hoped to lead to improved materials on three levels, Professor Lewis says.

Medically, the fibers could be used to make artificial ligaments and tendons, which are now only available from cadavers. The silk could also be used for sutures, making finer eye surgery and nerve repair possible. The fibers could also be used for tissue regeneration in bones and some ligaments so the area is not completely immobile while repaired.

The fibers could also be used to make body armor – including protective vests for peace officers, soldiers, and others – stronger yet lighter. These fibers could cut the weight of protective clothing in half, maybe even by two-thirds, Lewis says.

Noting spider silk is more elastic than nylon, Lewis says the research could produce fibers for parachute cords that would absorb energy to prevent collapsing and stabilize parachutes.

There could be other applications, too. For example, airbags made with these fibers would work like a spider web, absorbing energy instead of blasting drivers and passengers back into their seats. This would also make it safer for children to ride in the front, Lewis says.

There is one more Powell High School connection – Lewis and his PHS sweetheart, Lorrie Lewis, have been married for 36 years.

Editor’s note: *Josie Lorimer of Afton, who is majoring in journalism at the University of Wyoming, took the photographs and is the primary author of the story. She took a photojournalism class during the spring semester taught by guest instructor Robert Waggener, who coordinated the “Wyoming photojournalism project.” Students in the class carried out photojournalism assignments for many publications across the state and region. Waggener is an editor in the UW Cooperative Extension Service’s Office of Communications and Technology.*

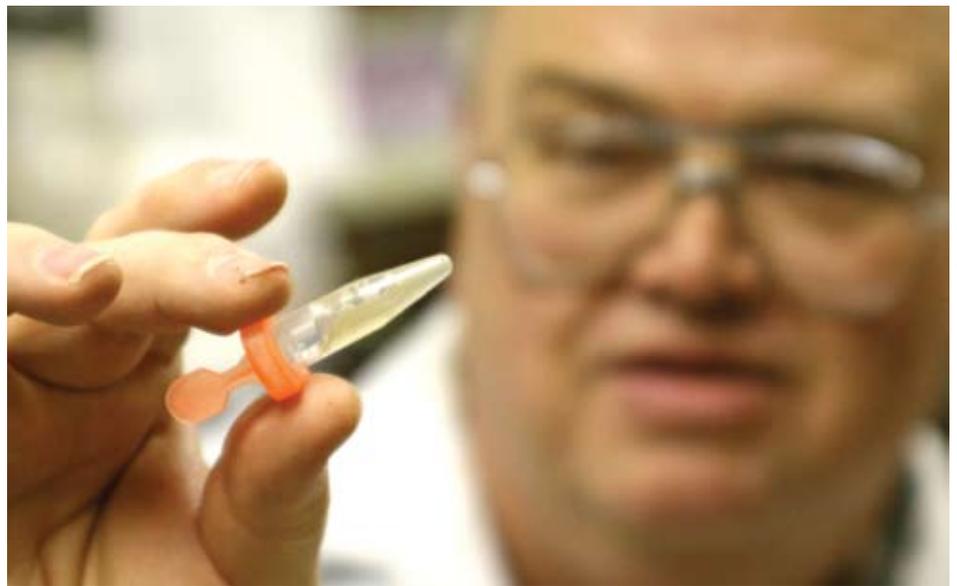


Photo by Josie Lorimer, University of Wyoming Journalism major

Michael Hinman shows the syrup-like consistency of the spider silk proteins before they are made into fibers. Hinman started researching protein hormones before he began his spider silk work in the Department of Molecular Biology.

Spring health conference effects long-lasting

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

Buzz that lasts months is a good thing.

Approximately 275 from 26 states returned to their home offices after the final event at “Shaping a Healthy Future IV: A Rocky Mountain Conference” April 23-25 in Jackson.

The conference, sponsored by several organizations, including the University of Wyoming Cooperative Extension Service (CES) and the Department of Family and Consumer Sciences (FCS), was dedicated to supporting youths and adults in adopting enjoyable and healthy lifestyles related to food, physical activity, and body image.

It must have struck a nerve. “It was one of the best national conferences I’ve



Suzy Pelican, food and nutrition specialist with the University of Wyoming Cooperative Extension Service, was on a conference planning committee.

been to – and I’ve worked for 33 years and been to more than 30 conferences,” relates Susan Morgan, southeast district extension associate for the Expanded Food & Nutrition Education Program (EFNEP) for the North Carolina CES.

Sure, enthusiasm has waned some, she says, “but I still feel this was one of the most useful national conferences I have ever been to.”

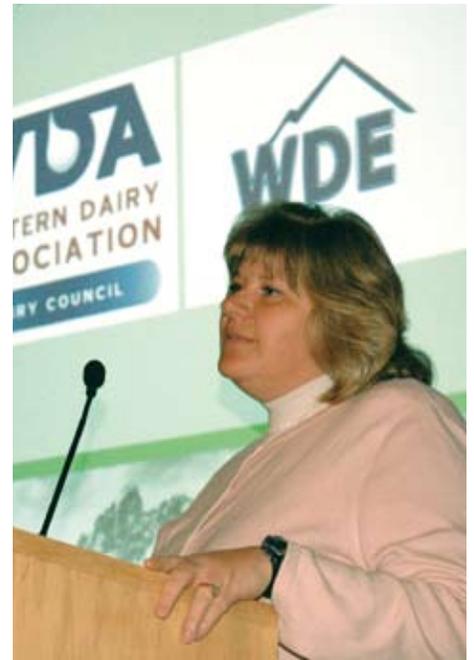
She’s reviewed handouts and resources that were linked to UW Web sites, but the conference’s staying power was energized by showing actual results.

“I specifically appreciated the built environment information that showed analysis of developments incorporating walking trails and layout that encouraged physical activity,” says Morgan.

Exercise breaks and healthy foods were built in to the conference. That caught the attention of Katelyn Andersen, a UW FCS graduate who is a Montana State University/Ravalli County Extension agent in Hamilton. She’s used the concept in her own conference planning. “We are planning our 2009 Annual Extension Update next October, and I want to include some built-in areas for walking (walking tours, yoga, etc.),” she says. “Plus, offer healthy food options. I have offered more healthy food options at some of the events offered through our office, and people have commented on the availability.

“The coordinators offered an amazing conference. They had national speakers who were excited about the topics.”

Mindy Meuli, Cent\$ible Nutrition Program manager in FCS, was a co-coordinator of the conference. She calls the speaker committee of Suzy Pelican, Mary Kay Wardlaw, Judy Barbe, and Ellen Burbank “awesome.”



Mindy Meuli, program manager of the University of Wyoming Cooperative Extension Service’s Cent\$ible Nutrition Program in the Department of Family and Consumer Sciences, was a co-coordinator of the conference.

Barbe, representing Wyoming Action for Healthy Kids, and Burbank, representing the Wyoming Dietetic Association, were co-chairs of the conference with Meuli, who represented Wellness IN Wyoming (WIN Wyoming). The three organizations hosted the conference.

Meuli and the others spent a year planning the conference. “Our driving force in planning was the fundamental principles of WIN Wyoming to focus on health, not weight, and that people can be healthy no matter what size, age, or income level they come from,” she says.

The speakers needed to support that philosophy and not promote unhealthy weight loss programs, not advocate unrealistic expectations of weight-loss goals, and respect body-size diversity.



Pausing for a photograph during the conference are, from left, Easter Tucker and Rosemary Rodibaugh, both of the University of Arkansas, author and conference speaker Susan Linn, of the Judge Baker Children's Center and Harvard Medical School, Linda Melcher of the USDA Food and Nutrition Service, and formerly of UW, who initiated the conferences in 2000, and Mary Kay Wardlaw, director of the Cent\$ible Nutrition Program in the College of Agriculture.

“We also focused in the conference of not just getting outstanding speakers but also making time to include physical activity in the meeting and time for networking and sharing new ideas and information,” notes Meuli.

All the speakers were plenary, which meant participants didn't have to choose between sessions. “We really tried to get the speakers to give practical tools people could implement in their own jobs and communities, and for themselves,” relates Meuli.

It must have worked. “Much of what was presented had great relevance for our clientele,” notes Suzanne van Rijn of North Carolina Cooperative Extension. She is responsible for a multi-county unit providing leadership in managing EFNEP. “There were many great resources discussed and distributed during the conference that we shared with our state EFNEP team upon our return.”

She says “staying power” are those items you can take back home, pull out of the suitcase, and use immediately on the job or pass on to others for their use on the job.

“This was one of the best conferences

I have attended in a long time,” van Rijn says. “The mix of professionals attending the conference was good because of the different perspectives they brought. So often, the group is all extension or all EFNEP ... The variety of professionals in attendance really helped give a well-rounded approach to the conference.”

She especially liked a presentation on creating communities that support active living. “It was my first exposure to this way of thinking,” she says. “Since then, I have been in several other conferences where this has also been one of the major topics discussed. It does seem as if this is the way communities need to be looking at redefining themselves in the future to help prevent obesity.”



Extension educators Sarah Frances, left, and Christine Pasley served on planning committees for the conference.



Machinery moves overburden during reclamation of abandoned strip mines in the Gas Hills near Riverton. The large pile to the right is topsoil that will be spread during final reclamation.

Photo courtesy Wyoming Reclamation and Restoration Center

Wyoming Reclamation and Restoration

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

The Wyoming Reclamation and Restoration Center (WRRC) at the University of Wyoming addresses a diversity of natural resource management issues in the state.

The center's mission is to research, teach, serve, and share knowledge in restoring, reclaiming, rehabilitating, and repairing energy development-affected land and ecosystems in Wyoming and beyond its borders, according to WRRC Director Stephen Williams, a professor in the Department of Renewable Resources.

Many of Wyoming's energy resources are deep under landscapes dominated by grasslands in the eastern part of the state and desert shrubs in the extreme southwestern part of the state but mostly under a huge landscape in the middle of the state dominated by sagebrush.

"The sagebrush steppe is a vastly exciting zone of continuous variability," says Williams. "There are rock art on many of the outcrops, ancient camping places of Native Americans, springs hidden in secretive draws, fantastic eroded zones of sandstone and siltstone towers, and patches of aspen and limber pine hidden in snow-accumulation pockets."

The sagebrush steppe landscape is an intricate web of specialized plants, lichens, soils, insects, and wildlife that have developed in a high, cold, windy landscape.

"Reclaiming it is challenging due to highly variable climate, poorly developed soils, and slow reestablishment of desirable vegetation," says Williams. "Although there are techniques available that have had some success, failure of reclamation efforts is common. With the intense energy development ongoing in the state, especially in the oil and gas industry, there is substantial need for reclamation procedures based on well

tested techniques. These are also called Best Management Practices (BMPs)."

Establishing and utilizing BMP-based procedures are goals behind comprehensive efforts of energy producers, reclamation companies, consultants, governmental entities, and the university.

"I think we are all humbled in the face of so much ecosystem complexity, especially in the sagebrush steppe," says Williams. "The only way we can accommodate this variability is for all of us to work together and to share our findings and utilize them together in revegetation efforts."

In mid-March, Jay Norton, an assistant professor in the Department of Renewable Resources, and others associated with the WRRC, organized a two-day meeting to bring in energy producers, consultants, federal agencies, and the university (including the UW Cooperative Extension Service [UW CES]), to address the fundamental

Harold Hutson, senior project manager with BRS Inc. in Riverton, holds an aerial photograph of reclamation efforts of a uranium mine area in the Gas Hills using pitting for revegetation to maximize water retention and minimize runoff flow, as well as new earthworks design techniques to create more natural appearing and geomorphically stable reclaimed landforms. BRS Inc. is an engineering and geology company specializing in mine reclamation and mineral development work.



Center addresses energy extraction issues

questions “what do we know and what do we not know about reclamation in the sagebrush steppe of Wyoming?”

Outlines for how-to-do-it publications that would be specific for given ecological sites, as well as publications that address some slippery definitions such as “what is topsoil?” were generated at the meeting, says Williams.

With accelerating natural gas development catching the attention of the public and land management agencies, Norton and colleagues saw the need for and have received a grant from UW CES to conduct an annual school on reclamation.

“Reclamation of drill pads, roads, pipelines, and other disturbances associated with natural gas development is hard in the characteristically dry, cold, but often variable environments characteristic of much of Wyoming,” says Williams. “A site that is clayey and alkaline will require seeding with

much different plant species than one that is sandy and non-alkaline. Local climate is a huge factor, too. Average summer highs may be in the 70s, but temperatures may reach into the 90s. Precipitation averages 10 to 11 inches per year but could vary from 3 inches one year to 20 inches another.”

There is a great deal known about revegetation in much of Wyoming. But there is also a lack of readily accessible knowledge about what works and what does not in certain areas like the Red Desert, says Williams. Although the overall goal is to maintain and enhance the wildlife resource of southwestern Wyoming, often overlooked fundamental resources are soil quality and a sustainable and stable plant community, which is essential for providing forage for grazers and habitat for diverse animal populations.

On the Web:

<http://uwadmnweb.uwyo.edu/wrrc/>



UW students Battuya Bayarmagnai of Mongolia and Nicole Bird of Australia at a restoration site near Dubois.

Former Uinta County Experimental Farm barn converted into community center

By Robert Waggener, Editor
Office of Communications and Technology

Call it a born-again barn.

What was once a building to house dairy cows and store equipment, seed, hay, and grain at the College of Agriculture's former Uinta County Experimental Farm is now a beautiful community center for residents of Lyman, the Bridger Valley, and surrounding area.

The Uinta County Experimental Farm was established near the small southwestern Wyoming agricultural community of Lyman in 1915. The barn, which was built in 1930, became an important part of the operations.

The barn's future became uncertain when the University of Wyoming sold approximately 160 acres of the 200-acre experimental

farm to the town of Lyman in 1993 – that is, until a group of residents went to work.

"I had such fond memories of this old barn. Among my favorites were the barn dances; we had such great times," says Lyman resident Dorothy James, who led a committee that successfully spearheaded efforts to convert the barn into a community center called the Lyman Heritage Barn.

The town received a \$957,656 grant from the Wyoming Business Council in 2006 while nearly \$170,000 was raised locally to completely renovate the two-story structure, which totals 5,040 square feet. Among the improvements were the addition of a large kitchen, restrooms, and an elevator to gain access to the second floor.

The Lyman Heritage Barn was used for the first time in April by the Greater Bridger

Valley Chamber of Commerce, and James proudly reports, "It has been booked ever since ... wedding receptions, meetings, private parties, family reunions, dinners and luncheons, picnics, quite a number of things."

The Uinta County Conservation District is among the many groups that have used the Lyman Heritage Barn. In mid-June, it hosted Wyoming Ag in the Classroom's Natural Resource Discovery Rendezvous for school teachers across the state, and the barn served as rendezvous headquarters.

"The renovated barn takes your breath away; the craftsmanship is just beautiful," says Dannette Edelmayer, education coordinator for the Uinta County Conservation District.

Jim Jacobs, professor emeritus in the Department of Agricultural and Applied Economics and former director of the College of Agriculture's Wyoming Agricultural Experiment Station (AES), says, "The farm had already passed on to the town when I became director, but it's great to see it used by the community and open to the general public."

Another former AES director, Laramie resident Leon Paules, was also delighted to hear the barn had been restored and converted into a community center. He worked for AES from 1938 to 1981, first as superintendent of the former Torrington Experimental Farm and then as state AES supervisor until his retirement.

When he was named state supervisor in 1958, Paules recalls, "The barn needed quite a little repair work on it. We had it painted and a new roof put on it."

Paules says the Lyman Experimental Farm was deactivated in 1945, and UW



Conrad "Connie" Kercher of Laramie, professor emeritus in the Department of Animal Science, and his wife, Lydia, tour the beautifully restored barn in June as part of the annual trek of the Wyoming State Historical Society.



This large barn was an important part of the University of Wyoming's Uinta County Experimental Farm in southwest Wyoming. It was recently converted into a community center.

leased the facility to a farmer. Proceeds from the lease helped maintain the farm.

Shawn McGinnis, manager of UW Real Estate Operations, says UW sold 160 acres of the farm to the town of Lyman in 1993 for \$195,000. The town also paid \$30,000 to cover immediate repair costs at the farm including \$20,000 to fix the barn's roof.

For several years, the town leased a portion of the farmland to the Lyman High School FFA Chapter, according to Lyman Town Clerk Lisa Bradshaw.

"It worked well for them," Bradshaw says. "The FFA kids benefitted from it. There was the education associated with the farming and ranching, and some of the kids volunteered their time throughout the summer."

Now, she says, the town is leasing the land to the Lyman FFA Alumni Association, which raises and harvests hay on irrigated pastures.

McGinnis says UW, in the early 1990s, leased the remaining 40 acres of the farm to Uinta County School District 6, which built the new Lyman High School on the property. The lease included an option to buy.

It recently came to the attention of UW Real Estate Operations that the lease-buy agreement between UW and the school district had never been finalized, McGinnis says, and steps are now being taken with the district to complete the transaction.

Dorothy James says the Lyman Experimental Farm was an important part of the development of agriculture in the Bridger Valley. Numerous plant varieties were tested including alfalfa, wheat, barley, oats, sunflowers, and garden vegetables.

"They learned if you covered the carrots and rutabagas in the fall with straw, you could still be eating them in February," James says.

An orchard includes apple, cherry, and plum varieties, and other trees planted at the farm included willow, elm, hackberry, honey locust, and boxelder.

Dairy cattle, bees, and poultry were raised. In the late 1920s, a modern milking machine that used natural gas was installed.

James says additional improvements are planned including converting the chicken coop into a visitor center, landscaping, and restoration of the orchard, windmill, root cellar, and outhouse.

"The outhouse is of real interest to the elementary kids when they come out here," James told members of the Wyoming State Historical Society (WSHS) during a stop at the farm in June.

Among those on the WSHS trek were Conrad "Connie" Kercher of Laramie, professor emeritus in the Department of Animal Science, and his wife, Lydia.

"The community center is a very good use of the barn," Kercher says. "I was impressed they installed the elevator in an original silo adjacent to the barn."

James emphasizes, "I am very thankful the town bought the property from UW. It's become an outstanding community project, a real asset for our area."

Her husband, Greater Bridger Valley Chamber of Commerce Executive Director Chuck James, adds: "The barn is a real nice facility, very lovely."

Joining Dorothy James on the committee were Lynne Buckner, Patsy Rogers, Charlyn Bluemel, and Courtney Walker, all of Lyman, and Lynn Arnell, a former Lyman resident who now lives in nearby Mountain View.



Lyman resident Dorothy James led a committee that successfully spearheaded efforts to convert the old UW Uinta County Experimental Farm barn into a community center.

Agricultural and Applied Economics

Agricultural business junior **Jessie Berry**, of Cheyenne, was selected as one of the six 2008 University of Wyoming Gold winners.

The winners were announced during the October 8 Homecoming Sing. Cardinal Key, the junior class honor society, sponsors UW Gold, which replaces traditional Homecoming royalty. Students are nominated on the basis of continued success in academic studies, community service, and leadership.

Berry is the daughter of **Janice and Jay Berry** of Cheyenne. Her adviser is **Dannele Peck**, an assistant professor in the Department of Agricultural and Applied Economics.

Peck organized a session on wildlife and livestock diseases at the conference “Pathways to Success: Integrating Hu-



Jessie Berry

man Dimensions into Fish and Wildlife Management, September 28-October 2 in Estes Park, Colorado.

The event brought together researchers in veterinary sciences, epidemiology, wildlife biology, and economics to identify multidisciplinary research needs in wildlife/livestock diseases, particularly rangeland and pasture systems.

Don McLeod, an associate professor in the department, is

the new editor of *Western Economics Forum*.

“I am hoping to have volume themes pertaining to specific issues important to the West,” says McLeod, who became editor in June.

The publication provides a forum for professional agricultural economists on agricultural and resource economic, business, and policy issues in the West.

Cole Ehmke, a UW Cooperative Extension Service (UW CES) personal financial management specialist in the department, helped organize the first money conference of its kind in Wyoming.

Helping youths get smart about money was the theme of the conference, “Jump\$tart Your Money,” September 30 in Cheyenne.

“This is a special event for eighth graders in southeast Wyoming to come learn about personal finance,” Ehmke said prior to the conference.

Ehmke represents UW CES on the board of Wyoming Jump\$tart Coalition (www.wyjumpstart.org), the primary organizer of the event.

Animal Science

Department of Animal Science students placed in poster competition at the Colorado Nutrition Roundtable hosted in September by Colorado State University.

Platt Price, a master’s degree student from Malad, Idaho, placed second and won \$250. His poster was “Duodenal Flow and Intestinal Disappearance of Fatty Acids in Lambs Fed Canola, Brown Mustard, or Camelina Seeds.”

Placing third and receiving \$100 was **Philip Moriel**, a student intern from Brazil who worked in the animal science ruminant nutrition laboratory. His presentation was the “Effect of Supplementing Rumen-Protected Fat on Conception Rate of Beef Cows.”

Both are students of Professor **Bret Hess**. Price will commence work on his Ph.D. in January while Moriel starts his master’s program at that time.

The competition is sponsored by the Wyoming, Colorado, Western Nebraska and Western Kansas Chapter of the American Registry of Professional Animal Scientists.

Amy Berry of Cheyenne, a junior majoring in animal and



*Assistant Professor
Dannele Peck*



*Associate Professor
Don McLeod*



*Extension Specialist
Cole Ehmke*



Platt Price



Amy Berry

veterinary sciences (ANVS), won the Wyoming Farm Bureau Federation's Young Farmer & Rancher Collegiate Discussion Meet in the College of Agriculture in October. ANVS junior **Nigel Miller**, of Elizabeth, Colorado, was runner-up.

Kelli DeCora, a Laramie native, joined the department as senior office assistant.

"Kelli will work with undergraduate and graduate students and will handle a multitude of other tasks that help make the department run smoothly," says

department head and Professor **Doug Hixon**. She joins another Laramie native, **Brandi Brewer**, an accounting associate who also works with extension faculty members and accommodates front office walk-in traffic, and **Linda Rosa**, senior accounting associate, who joined the staff in February.

A Michigan native, Rosa moved to Laramie from the Chicago area when her husband, **José Rosa**, joined the College of Business faculty.

"These are the ladies who work hard to handle issues that find their way into our office and make things run smoothly on a daily basis," Hixon says. "We are extremely grateful for all they do to assist our faculty, staff, and students."

Family and Consumer Sciences

"The Department of Family and Consumer Sciences is pleased to recognize several recent award winners," says Professor Karen Williams, head of the department.

Randolph Weigel received the prestigious Jim DeBree Excellence in Extension Award at the Extension Professional Improvement Conference (EPIC) for his many accomplishments as an extension specialist and faculty member and for his many contributions while an administrator within cooperative extension.



*Professor
Randy Weigel*



*Extension Specialist
Suzy Pelican*

Also recognized at EPIC were **Suzy Pelican** as Friend of CNP. **Becce Birdsley** received the Nancy Rieke Award from the Wyoming Food Safety Coalition for her contributions to Hazard Analysis and Critical Control Point and work with the coalition.

The department hosted the Cooperative Extension Nutrition and Food Safety Team the afternoon of October 14. Those attending included



Becce Birdsley

Ruth Wilson, Phyllis Lewis, Kentz Willis, Suzy Pelican, Mary Kay Wardlaw, Denise Smith, Vicki Hayman, Sarah Francis, Karla Case, and Christine Pasley. Faculty members **Shane Broughton, Enette Larson-Meyer, Mary Kay Wardlaw, Chrissy Wade, and Kari Morgan** presented current research. Student **Jesse Reese** offered information on a special problems project focusing on the development of an obesity camp for children he is undertaking with Associate Professor **Rhoda Schantz.**

Molecular Biology

Department of Molecular Biology Professor **Don Jarvis** in November was elected to the board of the Society for Glycobiology.

“Dr. Jarvis has been elected to the national governing body for his discipline,” says molecular biology department chair and Associate Professor **Mark Stayton**. “Don’s election reflects his leadership qualities and his national stature as a scientist, and it reflects well on the University of Wyoming.”

Stayton adds, “Students in the College of Agriculture benefit from his expertise and wide experience in virology and glycobiology.”

The Society for Glycobiology (<http://www.glycobiology.org>) is a professional organization dedicated to the science of glycobiology, the study of carbohydrates and their diverse roles in biology. The society publishes the journal *Glycobiology*

(<http://glycob.oxfordjournals.org/>).

Jarvis has been a member of the society since 1995 and has regularly attended annual meetings.

“This spring, I was fortunate enough to be asked to stand for election to the board of directors, and I was elected by the membership to serve for three years, from 2009-2012,” Jarvis says. “My precise duties as a member of the board are still not completely clear to me, but the bottom line is I will contribute to the decision-making process for the society over the next three years.”

UW Rodeo Club member **Nikki Steffes**, a senior majoring in molecular biology, received Academic All-American honors from the National Intercollegiate Rodeo Association (NIRA).

Steffes, of Vale, South Dakota, is advised by **Rachel Watson**, an assistant lecturer in

the Department of Molecular Biology. Her parents are **Darrell and Jan Steffes**.

Steffes was one of four UW Rodeo Club members making the team, which was announced in August (see www.uwo.edu/news/showrelease.asp?id=25003). UW had the most Academic All-Americans among the 41 student-athletes on the 2008 NIRA list.

Plant Sciences

Plants used in agriculture are the result of millennia of genetic improvement by humans. In recent years, genetic modification and molecular plant breeding have greatly increased the speed and precision with which agricultural plants can be improved, but each new genetically modified crop plant brings with it a new set of management questions.

Assistant Professor **Andrew Kniss** specializes in the use of crop plants that have been genetically modified for herbicide resistance. His recent results show that using Roundup Ready sugar beets for sugar production in Wyoming can save up to \$90 per acre in production costs, while increasing sugar production worth more than \$130 per acre in increased payment to the grower. “Weeds can be adequately controlled with little or no cultivation, which saves fuel and labor costs in addition to reducing soil



Assistant Professor
Andrew Kniss

erosion and loss of soil moisture,” reports Kniss. Additional benefits include lower toxicity to mammals and reduced soil carryover problems compared to other herbicides. Refined sugar from the beets contains no trace of the modified gene that confers glyphosate resistance. Glyphosate is the active ingredient in Roundup.

“One concern with these beets is that weeds may also evolve resistance to the herbicide over time,” Kniss notes. Research on how to economically manage Roundup Ready sugar beets to slow the evolution of glyphosate-resistant weeds is a major emphasis of Kniss’s research program. This research is funded by Wyoming Sugar Company, Western Sugar Cooperative, Monsanto Company, Bayer CropScience, Syngenta, and BASF, and by a grant from the University of Wyoming Agricultural Experiment Station.



Professor
Don Jarvis



Nikki Steffes

Renewable Resources

Assistant Professor **Jeff Beck** last spring initiated a cooperative research study to identify disturbance mechanisms influencing habitat selection by elk in coal-bed methane (CBM) development fields. This study is centered on the 122,930-acre, yearlong range of the Fortification Creek elk herd where Campbell, Johnson, and Sheridan counties meet within the Powder River Basin.

“**Clay Buchanan**, who began his doctoral studies in August, is developing a research proposal for our study, which will form the basis for his dissertation research,” says Beck. In March, they captured 39 cow elk in the Fortification Creek area to attach GPS neck transmitters to: (1) evaluate elk movement and habitat selection patterns in relation to CBM development activities, (2) better understand the disturbance mechanisms (traffic, noise, human activity, etc.) associated with CBM development that influence elk habitat selection, and (3) provide managers with recommendations to achieve economic CBM development while sustaining a healthy elk herd.

Clay, from Mount Pleasant, Michigan, and a crew of field technicians will be on the ground measuring disturbance mechanisms (using traffic counters, noise meters, etc.) through-



*Assistant Professor
Jeff Beck*

out the field project’s lifetime of 2009-2012.

Levels of disturbance mechanisms associated with gas field infrastructure (roads, well pads, etc.) will be used as predictor variables to model habitat selection. “Our study will provide a temporal perspective of elk habitat selection because we have baseline telemetry data from the 1990s, before development, which we will use as a temporal control to compare habitat selection patterns during development,” notes Beck. “Patterns of habitat selection will provide a means to evaluate habitat effectiveness and the ability to evaluate specific disturbances that influence habitat selection.”

Study cooperators include three energy corporations – Anadarko Petroleum Corporation, Pennaco/Marathon, and Petro-Canada Resources (USA) Incorporated; the Buffalo Field



Office of the Bureau of Land Management; the University of Wyoming School of Energy Resources; and the Wyoming Game and Fish Department.

Veterinary Sciences

A recent survey by the American Veterinary Medical Association indicated the number of new veterinarians pursuing post-doctor of veterinary medicine qualifications has increased every year since 1995.

Nearly 37 percent of recent veterinary graduates in the United States pursued advanced qualifications. At the same time, state diagnostic laboratories throughout the country and Canada have found hiring trained diagnosticians increasingly difficult. To resolve this, the American Association of Veterinary Laboratory Diagnosticians (AAVLD) commissioned a survey of veterinary laboratories to obtain baseline data on the veterinary diagnostic job market.

Survey questions were drafted by veterinary diagnosticians in Wyoming, California, Washington, and Ontario, Canada, including Professor **Donal O’Toole** of the Department of Veterinary Sciences.

O’Toole presented results of the survey at AAVLD’s annual meeting in North Carolina in October.

The main findings were:

- In recent job searches, the main shortages reported are in pathology, administration, and bacteriology among diagnosticians, and in bacteriology, histotechnology, molecular biology, and virology among technicians.
- The most important reasons for failed searches for personnel were absence of adequately trained personnel and poor compensation packages relative to private industry.
- One third of state laboratories hired diagnosticians without preferred qualifications in the past five years.
- There is a mismatch between what laboratories are training individuals in (at present, overwhelmingly in anatomical pathology) and the disciplines needed (especially in diagnostic microbiology and particularly personnel comfortable with both classical and molecular methods).



*Professor
Donal O’Toole*

PROGRAM NOTES

- The single most important reason for vacancies is that diagnosticians are being hired by other university and commercial diagnostic laboratories.
- There is no national training program for veterinary diagnosticians or technicians. This is in contrast with human medicine, where diagnostic career paths are well defined through state public health laboratories and the federal Centers for Disease Control and Prevention.

O'Toole says: "As a university that runs a state veterinary diagnostic laboratory, prepares pre-veterinary students for professional programs, and trains students in applied (classical and molecular) microbiology, the College of Agriculture is in a position to meet these needs."

He adds, "A national program is unlikely in the present financial climate, so it will come down to state universities, possibly in consortia, to meet these needs."

Agricultural Experiment Station

It was a very productive and busy year for the Wyoming Agricultural Experiment Station, says **Stephen D. Miller**, director of the station and associate dean. Fall harvest generated excellent sugarbeet and corn yields.



Casey Seals

The College of Agriculture set a new record for external grant dollars brought in for research. The college ended the fiscal year with \$14.6 million in external awards, which is more than \$2 million above the previous high. "This is the result of excellent and productive faculty and staff in the college," says Miller.

The Laramie Research and Extension (R&E) Center has seen considerable activity this fall. A GrowSafe Feed Intake System is being installed at the animal science farm for use in sheep performance trials.

"This system will allow researchers the opportunity to monitor individual animal performance and behavior similar to our capabilities with cattle at SAREC (James C. Hageman Sustainable Agriculture R&E Center) near Lingle," Miller says.

Kelli Belden, who heads up the soil test lab, assumed another role as director of greenhouse operations and hired **Casey Seals** as operations manager and **Pete**



Pete Gallins

Gallins as horticulturist. "Kelli has also spearheaded the installation of an improved water system at the greenhouse and when complete, plans to move the soil test lab to the greenhouse facilities," notes Miller.

Phase IV construction is progressing well at SAREC and will be complete for use early this year. This phase of construction consists of a wet lab facility as well as a congregate residence for long-term housing of graduate students, faculty, staff, and visiting scientists. SAREC was one of the stops on the University of Wyoming Fall Rendezvous Tour for new faculty and staff. "People on the tour were very impressed with the facility and the type of research being conducted at this site," says Miller. "**Jim Krall**, research director at SAREC, was slowed by heart bypass surgery but is making excellent progress on his road to recovery."

The Powell R&E Center is installing a new lateral move

sprinkler, which will be available for plot research this spring. The sprinkler will greatly expand the station's ability to conduct applied irrigation research. Construction planning is well under way for the new seed cleaning and processing facility. "The need for this facility is high because of the amount of foundation and certified seed being processed on the center," Miller says.

The Sheridan R&E Center lost its director this fall when **Justin Moss** accepted a position with Oklahoma State University. A search is in place for his replacement. The fruit orchard and grape vineyard at the center had an excellent production year with most of the produce being sold locally through the farmers' market. **Byron Nelson**, farm manager, and **Adrienne Tatman**, research associate, are keeping things going at the center until a new director is hired.

Cooperative Extension Service

Derek Smith began as computer support specialist, senior, August 18 in the Office of Communications and Technology. Smith has an associate of video recording and audio engineering degree from the International College of Broadcasting in Dayton, Ohio.

Jeff Edwards started October 20 as the Southeast Area assistant extension educator. Based



Jeff Edwards



Ashley Garrelts

in Goshen County, Edwards has a bachelor's degree in entomology from the University of Wyoming and a master's in entomology from Texas A&M University. He spent more than 15 years working for Dow AgroSciences in both sales and research positions prior to coming to UW CES.

Stan Skrabut began October 30 as the instructional technology education specialist in the Office of Communications and Technology. Skrabut has a bachelor's degree in information system management from

the University of Maryland, College Park, Maryland, and a master's degree in computer technology in education from Nova Southeastern University, Davie, Florida.

Crystal Krein, extension 4-H youth educator for Big Horn County, accepted the new 4-H educator position based in Weston County and began work December 1. Krein has worked for UW CES for two years. She has a bachelor's degree in range management/livestock production from Chadron State College in Nebraska.

Ashley Garrelts, a UW graduate with a bachelor's degree in animal science and a master's degree in rangeland ecology and watershed management, started December 8 as the Converse, Natrona, and Niobrara (CNN) area educator with focus on sustainable management of rangeland resources, based in Douglas. For the past two years, Garrelts worked for the federal Natural Resources Conservation Service in Richfield, Utah.

Academic and Student Programs

Discussions and brainstorming at the College of Agriculture's fall advisory meeting have led to increasing services for agriculture students by creating the AG Career Services office in the college.

This partnership between the College of Agriculture's

Office of Academic and Student Programs, College of Agriculture faculty members, and University of Wyoming Center for Advising and Career Services (CACS) will provide students with further accessibility to career and job searching components by building on-the-job searching tools they learn in the classroom, says CACS Assistant Director **Ann Jones**.

Jones is providing assistance to ag students through one-on-one appointments, e-mails, drop-in visits, and occasional class and group presentations. The program started in late October.

"The College of Agriculture and the Center for Advising and Career Services have always enjoyed a great partnership, but now that the CACS has a satellite office in the agriculture building, its value as a resource to our students will be enhanced that much more," says **Jim Wangberg**, College of Agriculture associate dean and director of the Office of Academic and Student Programs.

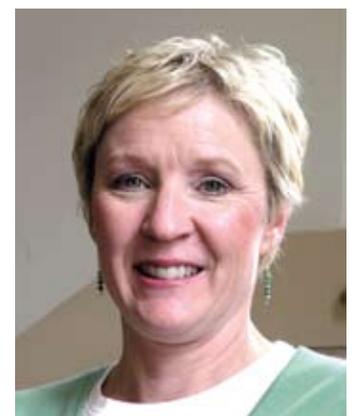
"Now students will find it much easier and more convenient to visit with professional career counselors and seek help in locating internships and part- and full-time employment," Wangberg adds. "Plus, all of the other excellent services provided by the CACS such as help with resume writing, preparation of interviews, etc., will be available."

Office hours in the college's room 139 are weekly from 1:30-4:30 p.m. Wednesday and 8:30-11:30 a.m. Thursday with the potential of extending these hours as needs arise, Jones says.

Jones has worked at UW for 22 years, including 20 years in CACS as employer recruiting coordinator, student internship coordinator, and assistant director.

She earned bachelor's and master's degrees in education from UW. She served on the board for the Mountain Pacific Association of Colleges and Employers and is an active participant in organizing college employer job fairs and recruiting events at UW.

Jones can be contacted at aljones@uwyo.edu or (307) 766-2398.



Ann Jones

Ag Development and College Relations

Planned Giving can best be thought of as a process of making a gift that uses tax, financial, and charitable estate planning techniques. Planned gift vehicles enable donors to make a sizable gift commitment for the benefit of the College of Agriculture and receive significant tax and financial benefits in return.

A charitable remainder trust can be established with a gift of assets, such as stock, real estate, cash, etc. The assets are sold inside the trust, and the proceeds are invested in a diversified portfolio.

“You receive a lifetime income from the trust and significant tax advantages. After your lifetime or a term of up to 20 years, the remaining trust

assets go to the University of Wyoming Foundation for the benefit of the specific college or program you designate,” says **Stephanie Anesi**, deputy director of development.

The UW Foundation is able to serve as trustee if the foundation’s remainder interest is irrevocable.

There are two basic types of charitable remainder trusts (CRT). Both carry pay-out rates of a minimum of 5 percent. The minimum gift to establish a charitable remainder trust with the UW Foundation is \$50,000 in cash, securities, or mortgage-free real estate.

Charitable Remainder Unitrust

This type of trust pays out a fixed percentage from the trust each year. The value of the unitrust is recalculated annually,



Stephanie Anesi

and the payout amount is also recalculated accordingly, keeping the percentage rate constant. The dollar distribution will vary annually depending upon the investment performance of the trust assets.

Charitable Remainder Annuity Trust

This type of trust pays out a fixed percentage of the **initial**

value of the trust each year (e.g., for a \$100,000 trust with a 5 percent pay-out rate, the amount would be \$5,000 per year). The dollar distribution will not change.

Donors are currently able to leverage the state match through the use of a CRT. One of the principal requirements to secure the match under the state matching statute is that the assets must be transferred to the UW Foundation as trustee. Once the state match is secured through the CRT, the matching funds become immediately available as permanent endowment dollars to fund the specific college or program you designate.

For more information about these or other opportunities, please contact Anesi at (307) 766-3078 or by e-mail at sanesi@uwo.edu.

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