

Summer 2011

WRRC News

College of Agriculture and Natural Resources
Department of Renewable Resources

A note from Pete

I hope everyone reading this newsletter has been enjoying a productive summer and has had the opportunity to take some time off to take advantage of the beautiful outdoor opportunities available in our great state.

The past couple of years have been very busy ones here at the Wyoming Reclamation and Restoration Center. We have been working hard to get our programs up and running to benefit reclamation of land, air, water and wildlife. Many of you have attended one or more of the Reclamation Workshops we have presented around the state. This effort has been a great

success; the Workshops have been well-attended and have received very positive feedback. We will continue to present the Reclamation Workshops and develop new ones. Another important objective of ours is to fund and contribute to research that will improve reclamation success in Wyoming. Some examples of this research include: improving soil amendments, use of supplemental irrigation, enhanced sagebrush reestablishment strategies and use of livestock to increase germination and establishment of seedlings.

One of our priorities for the next several months will be implementation of a

Reclamation certification program for nonstudent professionals to recognize knowledge of the basic principles of reclamation.

And, my final point here will be to ask for any suggestions that you may have to improve the way we accomplish our mission here at WRRC; Education of undergraduate and graduate students of Land Reclamation/Ecosystem Restoration at the University of Wyoming, Outreach education of professionals working in the field of Land Reclamation/Ecosystem Restoration, and Research on improving technologies to reclaim disturbed lands.



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Online news

▪ Our [website](#) is currently being updated! Please check it out periodically for new information.

▪ We are also on [Facebook!](#) Click to see our page.

American Society of Mining and Reclamation (ASMR) Meeting in Bismarck, N.D.

The University of Wyoming was well represented at the annual meeting of the ASMR held in Bismarck, N. D. this year. Students from U. W. and ROaR won two awards: Cally Driessen won the \$1,000 ASMR Memorial Scholarship in the Master's Degree category, while Lisa Cox was given a \$300 ASMR Travel award.

Congratulations to them both!



*North Dakota State Capitol
Bismarck, ND*

WRRC Welcomes new Office Manager



Morro Rock on the Central Coast of California

Robin Long has traded the dry, windy city of Laramie for the even drier city of Tucson, AZ! Robin left the Center earlier this year when her husband Nathan obtained a faculty position in the Animal Science Department at the University of Arizona. We have been lucky enough to hire Kristin Herman to replace Robin.

Wyoming or the College of Agriculture and Natural Resources, having earned a B.S. in Family and Consumer Sciences with an emphasis in Family and Community Services from U.W. She has also worked previously with the Cent\$ible Nutrition Program and WIN Wyoming.

Kristin comes to us, most recently, from the beautiful California coastal town of Morro Bay. She is no stranger to the University of

We are excited to have Kristin as a part of the WRRC team. Please stop by and say hello!

Research Proposals funded

WRRC has awarded Graduate Assistantship funding to 3 projects, for which proposals were submitted this past spring. A total of 10 proposals were submitted, and the WRRC would like to take a moment to say a quick thank you to all those that submitted proposals.

The first was awarded to Dr. Ann Hild, Professor in the

Renewable Resources Department and Dr. Urszula Norton, Assistant Professor in the Department of Plant Sciences. They are studying the impact of halogeton invasions on soil biota in reclamation seedings.

The second was awarded to Anowar Islam, Assistant Professor in the Plant Sciences Department, Dr.

Blair Waldron, Research Geneticist, USDA-ARS Forage and Range Research Laboratory, Logan, UT and Dr. Peter Stahl, Director of the WRRC and Professor in the Renewable Resources Department.

The final assistantship was awarded to Dr. Melanie Murphy, Assistant Professor in the Renewable Resources Department.



Hydraulic Fracturing Forum to be held

“The Hydraulic Fracturing Forum will explore technical issues and environmental concerns related to hydraulic fracturing technology and activities directly linked to its deployment. Desired outcomes of the forum include increased public understanding of the role of hydraulic fracturing in oil

and gas development in Wyoming, an inventory of worker safety and environmental mitigation best practices, and a list of specific research gaps that need to be addressed in the state.” – courtesy of the School of Energy Resources website.

This *free* forum will be held

September 26th and 27th at the Hilton Garden Inn in Laramie, WY. Attendance is limited, so register soon if you are interested.

Visit the [School of Energy Resources website](#) for more details.



Some examples of current research projects

• **Immediate Effects of Controlled Livestock Treatment on Reclaimed Natural Gas Well Pads.**
Cally Driessen, Amber Mason, and Jay Norton, University of Wyoming Department of Renewable Resources, Laramie, WY; and Calvin Strom, Wyoming Reclamation and Restoration Center, Laramie, WY.

This project is in the final stages, Cally is finishing up the analysis of data collected over two years. We anticipate the final results this fall in her Master's Thesis.

We are continuing to collect vegetation data comparing the cattle treatment to the no cattle through 2012 and will provide that information as the data collection is completed

• **Impact and recovery of belowground soil processes after disturbance and reclamation of Wyoming's sagebrush steppe ecosystem.**
Amber Mason, Cally Driessen, and Jay Norton, University of Wyoming Department of Renewable Resources, Laramie, WY; and Calvin Strom, Wyoming Reclamation and Restoration Center, Laramie, WY.

This project is a three-year PhD program and is in the final year of data collection. A large amount of soil and vegetation data has been collected and will be analyzed and published in

the coming year. It is multi-component study. Looking at soil properties, vegetation and habitat on gas pads in three locations in western Wyoming (Jonah, Pinedale Anticline, and the Continental Divide Creston gas fields).

We are looking at topsoil stockpile N, and what occurs when it is respread. How do five-year-old sites compare to recent reclaimed sites in SOM, vegetation and habitat. Soil properties, vegetation and habitat of reclaimed sites compared to undisturbed landscape. We are in the final stages of data collection and analysis, results will be forth coming this fall and spring of 2012.

• **Use of sterile tritiale to immobilize N and prevent weed invasion.**
Gary Austin, Calvin Strom, David Marshall, Pete Stahl, PI's. Funded by BP, KC Harvey, and WRRC.

This project was delayed by early winter and the tritiale was planted in early spring, preliminary analysis suggests that weed suppression was not present and immobilization of available N did not occur. The site has a heavy infestation of weeds, Russian thistle and halogeton. A fall planting may have produced the results we were looking for as the tritiale would have germinated and emerged over the winter and had a good jump on the weeds that did not occur with the spring planting.

• **Supplemental irrigation on Jonah field well pads.**
Ralph Swift, Calvin Strom, and Pete Stahl, PI's. Funded by Encana and WRRC.

The vegetation data has been collected and analyzed using SamplePoint vegetation classification program that uses photos and a computer program for analysis. Eight irrigated and two non-irrigated sites were used for this study. The irrigated sites consist of spring planted, spring irrigated (May planting, irrigated May-July 4 with three inches of water) fall planted (August 8, fall irrigated August 15-September 25 with three inches of water) dormant seeding (October 15, irrigated spring following year three inches of water) and a spring seeded fall irrigated (May 15, August 15-September 25 irrigation three inches of water. A 100 meter transect was setup on each site and twenty ½ meter photos were taken on each transect. These photos have been analyzed with the sample point software using 1280 points per transect to record vegetation present on the sites. Cool season bunch grasses, Rhizomatous wheatgrasses, Poa's, persistent litter, non persistent litter, shrubs (sagebrush, winter fat, and other shrubs) annual forbs, broadleaf forbs, rock, bare ground, and invasive species were recorded for each transect. Two non-irrigated sites were also analyzed

using SamplePoint and will be compared to each irrigated method.

• **Municipal Waste Compost as a soil amendment to alleviate soil crusting and salinity.**
Gary Austin, Calvin Strom, David Marshall, and Pete Stahl. Funded by BP, KC Harvey, Terra Firma Organics and WRRC.

Data has been collected and in the process of being analyzed. This information will be available this fall.



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