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Newsletter LRES



Spring 2011

Congratulations Graduates!

What a great time of year this is. Spring is emerging in Bozeman at the same time we celebrate the graduation of our students who will be acknowledged this week by family, friends, faculty, and staff for their academic achievements. Please enjoy perusing this newsletter which highlights the accomplishments of our students, staff and faculty. This edition also features the many ways our innovative and dedicated faculty work toward creating teaching excellence and research experiences to prepare our students for their futures as professionals in the fields of land resources and environmental sciences.

Graduating students - my heartfelt congratulations to you and best wishes for your success. Please stay in touch to let us know what great things you are doing.

~Tracy Sterling, Department Head, LRES

“The future belongs to those who believe in the beauty of their dreams.” Eleanor Roosevelt

LRES Recognition



Merry Paceley

Each year the MSU Employee Recognition Awards Program honors outstanding performance and contributions by Montana State University employees. For the second year in a row the LRES department nominated Merry Paceley for this award. This year Merry was selected from the 59 nominees as one of 5 to be recognized as “2011 Employees of the Year”. Each of the five recipients received \$500, a 14 karat-gold custom-designed pin and a certificate of recognition. All winners have his or her name engraved on special Employees of the Year plaque displayed outside the presidents office.



Linda McDonald

Carmel Johnston and Linda McDonald were recognized Tuesday, Feb. 22, at the 29th annual Awards for Excellence banquet held on the MSU campus. MSU Alumni honored students were nominated by faculty in their college or department. Qualified seniors had at least a 3.5 grade point average on a 4.0 scale as well as demonstrated campus leadership and community service.



Carmel Johnston

The award-winning students each selected a mentor who was honored with them at the event. Carmel selected our Academic Coordinator, Linda McDonald.

Full Article: www.montana.edu/cpa/news/nwview.php?article=8085

LRES Recognition *(Continued)*

Employee Recognition



LRES professional staff member Rosie Wallander was honored as a nominee for the Employee Recognition Award. The winners were selected by a committee of students, classified, professional and faculty representatives.

<http://www.montana.edu/cpa/news/nwview.php?article=9644>

ESA Outstanding Paper of the Year



Robert Peterson received the 2010 Editor's Choice Award for the Outstanding Paper of the Year by the Entomological Society of America. "The real enemy: Scrub Typhus and the Invasion of Sansapor", by Peterson, R.K.D. 2009. American Entomologist 55:91-94. The award was presented at the Annual

Meeting of the Entomological Society of America, December 12, 2010.

EPA SAB board Appointment

Duncan Patten chaired the Environmental Protection Agency Science Advisory Board (SAB) panel that reviewed several reports including, "Impacts of Mountain Top Mining" and "A benchmark for conductivity to be used for evaluating water contamination by coal mining, mainly mountaintop mining". He is now on a new EPA SAB panel reviewing EPA's Office of Research and Development research plan to determine the effects of hydraulic fracturing on drinking water resources.



John Priscu's research was highlighted in several press releases:

US science academy report calls for 'bipolar' research

<http://www.montana.edu/cpa/news/nwview.php>



MSU honors top faculty

Cathy Zabinski was honored with the Women's Faculty Caucus Distinguished Mentor award.

<http://www.montana.edu/cpa/news/nwview.php>



Promotion— Congratulations to Robert Peterson and Cliff Montagne for earning promotion to Professor.



Their accomplishments were recognized at the President's Celebratory Dinner to honor faculty



earning promotion and tenure.

Brian McGlynn was elected to the board of directors for the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI). This an outstanding opportunity to serve the larger community and help raise the profile of MSU.

<http://www.cuahsi.org/>



CBE Outstanding Faculty Award

The Center for Biofilm Engineering presented Christine Foreman with the Outstanding Faculty Award for 2011. The certificate reads: Awarded in grateful recognition of your deep commitment to interdisciplinary research and education, exceptional mentoring of graduate and undergraduate students and visitors, and unselfish contributions to CBE teamwork—all of which serve as a model of generosity, creativity, organization, and academic excellence.

Congratulations Christine!



LRES Student Recognition

MSU Student MVP!

Alexey Kalinin an LRES soil and water major, was featured as MSU student MVP. The video was aired statewide during the broadcast of the October 23rd football game on ABC.

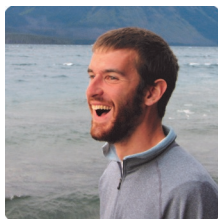
Follow this link:

<http://www.youtube.com/montanastate#p/u/20/JinDx-598G4>

Kelsey Jencso



John Mallard



Tyler Smith

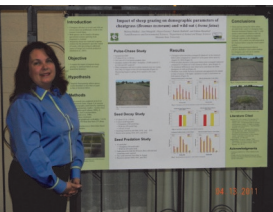


Congratulations to **Kelsey Jencso**, **Tyler Smith** and **John Mallard** for receiving the Outstanding Student Paper Award for presentations at the 2010 Fall Meeting Hydrology of the American Geophysical Union in San Francisco, California.

Oral Presentation—Kelsey Jencso, “Linking catchment structure to hydrologic function: Implications of catchment topography for patterns of landscape hydrologic connectivity and stream flow dynamics”.

Poster—John Mallard, “The role of stream network complexity in hydrologic turnover, nutrient retention, and watershed outlet signatures”.

Oral Presentation —Tyler Smith, “A Bayesian Toolkit for Modeling Perennial and Ephemeral Catchments”.



Research associate **Melissa Medley** won first place for her poster at the Montana Nutrition Conference.

<http://www.montana.edu/cpa/news/nwview.php?article=9291&origin=homepage>

Tanya Skurski, an LRES Ph.D. student was awarded a Western Society of Weed Science (WSWS) scholarship for her thesis work with Bruce Maxwell and Lisa Rew on “Quantifying community-level impacts of spotted knapweed and downy brome” and for her work with the WSWS board.



<http://www.wsweedscience.org/Meeting/photos-2011.asp>

Several students received awards for their work at the Annual Montana Water Conference in Helena, October 14-15, 2010. **Seth Kurt-Mason**, an LRES graduate student, took second place in the oral presentation category.



Noelle Orloff, M.S. student with Fabian Menalled and Jane Mangold, received 2nd place in the student paper contest (oral presentation) at the Society for Range Management 64th Annual Conference. The title of her paper was “The role of relative size and nitrogen availability in competitive interactions between cheatgrass (*Bromus tectorum*) and bluebunch wheatgrass (*Pseudoroegneria spicata*)”.



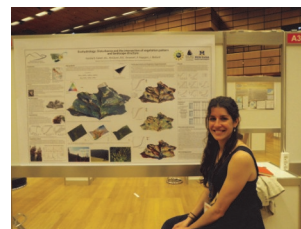
Renowned Native American environmental researcher **Margaret Hiza Redsteer** spoke at this year’s Native Science Fellows meeting at MSU April 18. The meeting was hosted by LRES graduate student Lisa Lone Fight.

<http://www.montana.edu/cpa/news/nwview.php?>

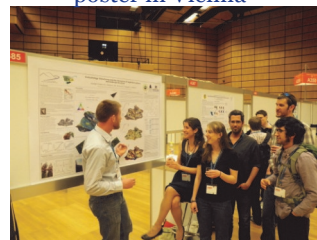
Students present Research in Austria

Several LRES students traveled to Vienna, Austria to present their research at the European Geoscience General Assembly. This was a meeting of geoscientists from all over the world covering all of the disciplines of the Earth, Planetary and Space Sciences.

<http://www.exponent.montana.edu/2011/02/undergrads-present-research-austria>



Kendra Kaiser with her poster in Vienna



Students from MSU with their European colleagues at the poster session



Anna Bergstrom and Tim Covino on the streets of Vienna

LRES Capstone 2010

LRES 442 Capstone 2010:



Galen Baird taking a soil compaction sample

This was the final year of the LRES Capstone course as a 2-semester sequence for seniors. This year we evaluated the effect of road decommissioning practices on soils, sub-surface water, insects and plants, in collaboration with the Gallatin National Forest, particularly hydrologist Mark Story.

Students developed their own research groups and questions concerning soil compaction and infiltration, sub-surface water movement, diversity of insects and use of insects as bioindicators, and, success of plant rehabilitation seed mixes along with weed invasion.

The students collected data throughout the summer with all groups taking samples along the roads and in the adjacent landscape, at our Hyalite study area. At all stages of the project there were revisions and improvements made, with emphasis on the importance of applying scientific principles to field situations, and analyzing and reporting data clearly and professionally.

Students summarized their results in three final seminars in November and a final report. Every student presented at one of these three seminars which were given to an introductory environmental science class (LRES 110), to the staff and faculty of the LRES department, and to the staff of the Forest Service.

The results of the class have been of considerable interest to the Forest Service and the results have been presented twice more at agency meetings. The final paper can be downloaded at the following link: http://landresources.montana.edu/facebook%20link/2010_Capstone.pdf

~ Lisa Rew, capstone instructor



Emma Williams, Kelley Dallapiazza and teaching assistant Melissa Bridges access plant richness and cover at one of the off-road locations.

GSO Activity

LRES Graduate Student Organization

The LRES Graduate Student Organization (GSO) is in its second year. The 2010-2011 GSO Committee (Tristy Vick, Jerome Schleier, Alex Michaud, Justin O'Dea, Tyler Brummer, Zack Jay, and faculty advisor Dr. Lucy Marshall) worked with the the department curriculum committee to collect student feedback on the structure of the LRES 500 Seminar and the structure of the Ph.D and M.S. programs within LRES, and worked to facilitate departmental interaction via socials, which are now being held monthly at Colombo's.

LRES GSO website We officially launched the GSO Website which includes information about the GSO, events, news, a discussion forum, a spot for grad student photos, and general information for students. Here is the link:

<http://sites.google.com/site/lresgso/home>

LRES First Annual Graduate Research Colloquium

LRES is a department that encompasses a wide breadth of scientific research and includes students and faculty of diverse backgrounds. On March 25, 2011, the LRES GSO sponsored the first annual LRES Graduate Research Colloquium to give LRES graduate students the chance to share and discuss their research and to interact with the department in a manner similar to a professional meeting.

GSO chair Tristy Vick opened the event, followed by a welcome from Department Head Dr. Tracy Sterling. Dr. Cliff Montagne was the keynote speaker for the evening, and gave a lively presentation on the history of the Land Resources and Environmental Sciences Department.

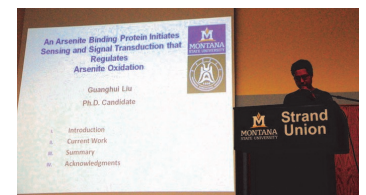


Four students, representing the range of LRES science gave 15-minute oral presentations, which were moderated by Justin O'Dea. A poster session with hor d'oeuvres and drinks rounded out the evening.

The evening was a success, with 15 presenters, and many more attendees. The Colloquium was made possible by the generosity of the LRES department and its faculty, staff, and students.

~Tristy Vick, GSO President

Lui Guanghui's Presentation



Key note speaker Cliff Montagne



LRES Club

GLASS RECYCLING: Earth Week was April 16-22. The LRES club worked with NECO to place a glass recycle bin on the mall for students to recycle glass bottles.



Stream cleanup of Mandeville Creek:

LRES Club, with cooperation of the MSU chapter of American Fisheries Society and the Gallatin Flycasters coordinated to cleanup the portion of Mandeville Creek on campus.

~ Carmel Johnston



Student Events

The LRES end of spring semester BBQ was a huge success! We had record numbers attending at the Beall Center, and it was a great opportunity for students and faculty to mingle in a casual setting to share stories, plans for the summer, and make new connections. Thank you to all who attended! It was your presence that made for a great atmosphere and a great time was had by all! Keep an ear out in the fall for our next social gathering.

~Carmel Johnston, LRES Club President



LRES department at MSU has created a facebook page. Its purpose is to advertise seminars, inform students about deadlines, and provide information for opportunities such as scholarships and awards.



Click on the link below!!

<http://www.facebook.com/pages/MSU-Land-Resources-and-Environmental-Sciences/149990385058386?ref=ts&v=wall>

Faculty Spotlight

Dr. David Weaver is an associate professor of entomology with an active research and teaching program in chemical ecology and integrated pest management (IPM). He teaches AGSC 401, IPM, each fall semester and ENTO 520, Insect Physiology, for the Masters in Entomology degree, in alternate fall semesters. The IPM class focuses on all groups of pests (disease organisms, insects, weeds, vertebrates) that must be considered when growing a crop. He leads a chemical ecology and insect behavior research program that primarily focuses on pest management in cereals and also works on insect biological control of noxious rangeland weeds. This basic and applied research program is strongly supported by three Research Associates: Megan Hofland, Norma Irish and Aracely Ospina-Lopez. Postdoctoral members of the laboratory are Dr. Micaela Buteler (from CONICET, Argentina) and Drs. Barbara Keith and Ryan Bixenmann. Rex Davis and Eli Hubbard are current graduate students and there are a number of pre-baccalaureate research assistants. His laboratory collaborates institutionally, nationally, and internationally with other researchers, primarily on the management of wheat stem sawfly and also on biological control of invasive toadflax. By necessity, his program focuses on developing methods to control pests that are not readily managed by pesticides due to innate biological limitations (wheat stem sawfly) or the cost-prohibitive scale of the problem (landscape dominating noxious weeds). He also studies secondary plant metabolism to identify new sources of host plant resistance in cereal crops at the mechanistic level, as well as for strategic deployment by growers. Incorporating fundamental knowledge of insect behavior and plant chemicals to enhance efficacy of biological control agents in the field is a key component in IPM strategies that are being refined. Closely related efforts include conservation biological control and assessments of the role of endophytic microorganisms within crop and rangeland settings. The laboratory and greenhouse research is strongly supported by numerous field projects throughout Montana, with sites beyond 400 miles from the main campus. Dr. Weaver has no formal Extension assignment but has a strong outreach program across state venues with the goal of increasing awareness and adoption of research supported management recommendations.



Class Highlights

A quick snapshot of LRES class activities

NEW COURSES IN LRES

LRES prides itself on the quality of its teaching, research and outreach, and the fact that our faculty work very hard to provide a high quality education for our students. With several new faculty hired over the past five years, we are continually adjusting our curriculum to add new courses that keep our students abreast of advances in the environmental sciences.

Biogeochemistry

Dr. Jack Brookshire, one of our three new faculty, is teaching a course in Biogeochemistry that covers the cycles of nutrients on a global scale, and how those cycles are affected by human activities. His course is dual-listed as either a graduate or an undergraduate level course.

Environmental Biophysics

Dr. Paul Stoy, another new addition to the LRES faculty ranks, has developed a course in Environmental Biophysics. Biophysics applies concepts from the physical sciences to biological systems; Paul's course covers micrometeorology, climatology, and biophysical ecology, and includes a computer lab along with the lectures.

Geospatial Sciences

We have added two new courses in geospatial sciences. Diana Cooksey is teaching an undergraduate course that gives students hands-on experience using GPS receivers and GIS, GPS and remote sensing software, and explores the expanding use of geospatial technologies in addressing real-world problems. Students in Dr.

Rick Lawrence's new course in Applied Remote Sensing apply data from satellite imagery to applied environmental science problems. Students will complete a full project, from hypothesis formation to developing methods to final analysis of results from advanced image processing as part of this course.

Environmental Risk Assessment

Dr. Robert Peterson's course in Environmental Risk Assessment was previously taught under a different name and only for graduate students, but now is being offered also for undergraduates. Principles of risk analysis will be studied in reference to human toxicology, ecotoxicology, dose-response relationships, exposure analysis, and environmental fate, and case studies will include pesticides, genetically engineered organisms, invasive species, and mining.

Biodiversity Survey and Monitoring

Students who are interested in academic or vocational careers that involve field work will be interested in Dr. Lisa Rew's new course in Biodiversity Survey and Monitoring. Students will spend a week in the field before the regular semester begins, and between field work and class work, will learn the theoretical and practical skills associated with flora and fauna surveying and monitoring designs and data analysis. This course is also co-convened and open to graduate and undergraduate students.

LRES Capstone

Continuing with our desire to provide high quality and relevant environmental science classes, we have restructured our Capstone class. Previously, all seniors participated in this class and each year we chose a different project site. Past sites have included acid mines, a ranch, decommissioned forest roads, community food gardens and forests burnt by wildfire, amongst other things. Each year the students worked as a large team and in smaller groups to design research questions that they put into action in the field. They then analyzed their data and developed a project report with recommendations for the landowner. This approach has worked well providing students with hands-on experience of multi-disciplinary research and report writing. However, due to the diversity of majors within our department we have now decided to split this into two parts: seniors will now take a reformatted Capstone taught by Dr. Cathy Zabinski that addresses the interface between science and natural resource management and policy. The class time will be used discussing readings drawn from a variety of sources, guest lectures, and with group work to produce a final report and seminar.

Students will also select a research-designated course from a choice of three: Dr. Rick Lawrence's Applied Remote Sensing, Dr. Geoff Poole's Stream Restoration, and Dr. Lisa Rew's Biodiversity Survey and Monitoring. Each of these courses require that students design their own research project.

~Lisa Rew

LRES Outstanding Senior Awards

Carmel Johnston



Carmel graduates this semester with highest honors for her B.S. of Environmental Science with a concentration in Soil and Water. A Whitefish MT native, Carmel has clearly demonstrated that she represents the ideals of our department and its mission. She has been a stellar student with consistently excellent performance in her classes, but perhaps more importantly she has pursued multiple service, outreach and community activities beyond her degree. She has contributed to multiple clubs on campus, including the Students for Danforth Park, Engineers without Borders, and the Network of Environmentally Con-

She has greatly enhanced the collegial atmosphere within our department, most notably by leading the Land Resources club and by working in the Water Quality Extension research lab. These activities, in addition to her contribution and service in other community organizations and activities (such as Girl Scouts, Habitat for Humanity and Relay for Life), are all the more impressive given her outstanding performance in classes and her excellent grades. Carmel says “My experience in the LRES dept has been wonderful. Starting as a freshman in Lisa Rew's LRES 110 class, which gave me a glimpse of what the department was about and I knew that this was where I wanted to be. I really felt welcome and all the professors were friendly.” Carmel will now pursue a M.S. in LRES with Stephanie Ewing, and has already started preparing for a research trip this summer to study hydrology and weathering of soils in Alaska. We wish her the best for her continued success.

~ Lucy Marshall, Advisor

Alexey Kalinin



Alexey will graduate with highest honors this semester having earned two degrees, one in Economics and the other in Environmental Science with a concentration in Soil and Water. He is originally from Lugovaya Russia, and completed high school in Bozeman. His list of accomplishments, awards, presentations, and community and MSU service are simply outstanding. Last year, he received the MSU Senior Award of Excellence for leadership through leading the restoration efforts for MSU's Danforth Park. He also was featured on an MSU recruiting video that recognized his successes and contributions to MSU and the College of Agriculture.

He has been very active in doing research while pursuing his degrees. First, he worked with LRES Professor Tim McDermott through the MSU Undergraduate Scholars Program. Then, with an NSF Research Experience for Undergraduates (REU), he studied with LRES professor Brian McGlynn; he recently presented this work at the European Geophysical Union annual meeting in Vienna, Austria and will publish it this summer in the journal *Biogeochemistry* with him as lead author. Alexey says “the best experience as an LRES student was doing the research. Faculty were so accessible and the research so rewarding”. Alexey also earned a prestigious internship to work on carbon sequestration policy in Norway last summer and will do so again this summer, followed by a backpacking trip to Glacier and then he is headed to Oregon State University where he will work on a M.S. in Water Resource Economics in the Institute for Water and Watersheds. We wish him the best for his continued success.

~ Brian McGlynn, Advisor

LRES Graduating Seniors

Bachelor of Science Degrees

Fall 2010

Daniel Campbell
Land Rehabilitation

Mathew Hanson
Land Rehabilitation

Keyne Kensinger
Land Resource Sciences
Land Resources Analysis & Management

Emily Lewis
Environmental Sciences -
Soil & Water Science
Honors

Amanda Lipe
Environmental Sciences -
Soil & Water Science

Robert Peters
Land Rehabilitation

Elizabeth Usher
Environmental Science—
Soil & Water Science

Spring 2011

Kemal Akkoyun
Environmental Sciences -
Policy & Management

Stuart Baker
Environmental Science- Env. Biology
Honors

Anna Bergstrom
Land Resource Sciences
Land Resources Analysis & Management
Highest Honors

Kelley Dallapiazza
Environmental Sciences - Env. Biology

Alexander Gaffke
Environmental Sciences - Env. Biology

Kathleen Huse
Land Resource Sciences
Land Resources Analysis &
Management

Amanda Hyman
Environmental Sciences - Env. Biology
Highest Honors

Carmel Johnston
Environmental Sciences -
Soil & Water Science
Highest Honors

Kendra Kaiser
Environmental Sciences - Env. Biology/
Soil & Water Science
Honors

Alexey Kalinin
Environmental Sciences -
Soil & Water Science
Highest Honors

Galen Laird
Environmental Sciences -
Soil & Water Science

Christine Miller
Land Resource Sciences
Land Resources Analysis &
Management
Honors

Zachary Twombly
Environmental Sciences -
Soil & Water Science
Emma Williams
Land Rehabilitation
Honors

Summer 2011

Bret Sather
Land Rehabilitation

LRES Graduate Degrees

Summer/ Fall 2010

Kim Goodwin
Land Resources and
Environmental Sciences

Seth Kurt-Mason
Land Resources and
Environmental Sciences

Rebecca McNamara
Land Resources and
Environmental Sciences

Briana Schultz
Land Resources and
Environmental Sciences

Trista Vick
Land Resources and
Environmental Sciences

Doctor Of Philosophy Degrees

Summer/Fall 2010

Kristin Gardiner
Ecology and Environmental Sciences

Kelsey Jencso
Ecology and Environmental Sciences

Mark Kozubal
Ecology and Environmental Sciences

A gift to the Department is a great way to support student and faculty endeavors. Donations can be earmarked for student scholarships or internships, graduate fellowships, undergraduate and graduate student programs, endowed professorships and more. For information about making a donation to the Department please contact:

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