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NRM Newsletter

Natural Resource Management

12-2013

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South Dakota State University

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Recommended Citation

Willis, Dave, "Natural Resource Management Newsletter" (2013). *NRM Newsletter*. Paper 7.
http://openprairie.sdstate.edu/nrm_news/7

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NATURAL RESOURCE MANAGEMENT (NRM) NEWSLETTER



Department of Natural Resource Management
"Regionally Relevant but Nationally Recognized"
South Dakota State University
Volume 72, Number 5, December 2013

Newsletter Update—Dave Willis (Department Head)

December certainly seems like a good time to distribute another 2013 newsletter to our alumni and friends. After all, this is a time of closure with the semester over (final exams are December 12-18 this year), and a time of renewal as we head into the holiday season with Christmas and New Year's Eve just ahead. Spring semester classes start on January 13, and so the cycle continues. We certainly have plenty of newsletter material! ☺ Keep that information coming, and we will keep up the distribution!

Photo credit for the banner image on top of this page: acknowledgement for the tall grass prairie management image goes to **Rocco Murano** (BS, Wildlife and Fisheries 2002; MS 2007 under **Dr. Chuck Dieter**), the SD Game, Fish and Parks State Waterfowl Biologist. We are fortunate to have Rocco stationed in our department.

NEWS FROM OUR ALUMNI

Ryan Doorenbos

Ryan Doorenbos (MS, Wildlife and Fisheries 1998, under Dr. Berry) braved the first snow of the year in early November to travel to Brookings and speak to the SDSU Student Subunit of the American Fisheries Society (thanks also to **Dave Lucchesi** from SDGFP for attending). Ryan is the Area Supervisor for the Windom Area Fisheries Office of the Minnesota DNR and thus manages waters in a large portion of southwestern MN. Ryan spoke about job opportunities, how to increase chances for employment in a fisheries position, and then specifically discussed some of his management efforts. Thanks again for making the trip, Ryan. The typical 2-hour trip back to Windom apparently took 3.5 hours that night; Ryan said he was glad to get home.

Paul Bultsma

Paul Bultsma (BS-1973, MS-1976, Wildlife and Fisheries, MS under Dr. Linder, Wildlife Club president, Ag-Bio Prexy Council president) retired after 23 years with Ducks Unlimited. As a biologist at the Great Plains Regional Office (Bismarck) Paul delivered wetland and grassland projects in North and South Dakota, Wyoming and Montana. Hunting and fishing are too good in North Dakota to move from Bismarck any time soon. Goose hunting still excites Paul.

Dr. Annette Drewes

Dr. Annette Drewes (B.S., Wildlife and Fisheries, 1986) is now an Instructor at Gaa' Oziskwaajimekaag Gabe Gikendaasooiwigamig (Leech Lake Tribal College) in Cass Lake, MN 56633. She has responsibilities in both their Forest Resources A.S. Degree program and their Natural Sciences (A.S.) program area. Annette is married to **Henry Drewes** (M.S., Wildlife and Fisheries, 1984 under **Dr. Tim Modde**). Henry is the Minnesota DNR Regional Fisheries Manager for the northwest region (Region 1); he is stationed in Bemidji.

Here is an update from Annette: "I have been bouncing around jobs and landed here after teaching adjunct and fixed term at Bemidji State University. This has been a great fit for me. Not only do I get to develop an entire new program that leans heavily on collaborations with the U.S. Forest Service and Leech Lake Dept. of



Resource Management, but I also continue my own learning through every day classroom experiences with my students. LLTC is a small Tribal College (250-300 students) on the Leech Lake Reservation which shares boundaries with the Chippewa National Forest, an awesome classroom to have right outside our doors. This year I was the recipient of a Mellon Research Fellowship through the American Indian College Fund. I am working with a community partner to identify Sweetgrass (*Anthoxanthum hirtum*) habitat on the Chippewa. Additional research involves measuring macroinvertebrate biotic diversity and production among six forested ponds in the Chippewa National Forest. This project is being done in collaboration with Dr. Sue Eggert, USDA Forest Service – Northern Research Station. I am also working on a book proposal in my free time, on wild rice harvesting stories and the ecology of wild rice (*Zizania palustris*). Our two girls are doing well; the oldest is an Athletic Trainer at Therapeutic Associates in Medford, Oregon and AT for the Phoenix High School Athletic teams. Our youngest is finishing up her junior year at the College of St. Benedicts in St. Joseph, Minnesota with a double major in Biochemistry and Nutrition. End goal – PhD in Biochem/Nutrition. Henry continues to hunt and fish. ☺”

Mark Kaemingk

Dr. Mark Kaemingk (Ph.D., Wildlife and Fisheries 2013, under Willis) left South Dakota for his 2-year stint in New Zealand. Mark successfully submitted a NSF postdoctoral fellowship to fund this exciting portion of his career. Following is an update from early November.

“Greetings from down under. ☺ Amy and I made it safely to Wellington after a 30 hour journey. We couldn’t be more pleased to be here and have thoroughly enjoyed the kind hospitality provided by the local Kiwis (i.e., people of New Zealand), the superb food and beverages, spectacular views, among others.

My office actually has an ocean view and on sunny days I can see the South Island and its prominent snowcapped mountains [I will miss my Biostress office but I think this one will grow on me ☺]. I guess the other day when I was gone a few Humpback whales breached just outside the laboratory; pretty crazy!

Below is my contact information; I will still use my sdstate.edu account as long as they will let me. I hope a few of you are able to come and visit.

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<http://www.victoria.ac.nz/sbs/research-centres-institutes/vucel>



Dr. Mark Kaemingk after arrival in New Zealand.

December graduation list: undergraduates

We had 31 undergraduate students file a graduation application for December of 2013. Ecology & Environmental Science: **Matthew Fodness** and **Joshua Freese** (double major in Wildlife & Fisheries). Range Science: **Christopher Cerise**, **Nicole Schwebach**, and **Chance Tobin**. Wildlife & Fisheries: **Joshua Alesch**, **Jason Augspurger**, **Jeffrey Augspurger**, **Eric Bazyn**, **Shawn Cole**, **Cameron Custer**, **Carey Egeland**, **Bailey Gullikson**, **Craig Healy**, **Emily Holm**, **Lance Johnson**, **David LaGroue**, **Thomas Larson**, **Zachary Lau**, **Jacob Lindgren**, **Jacob McMurry**, **Kevin Peery**, **Alex Rosburg**, **Justin Simpson**, **Ryan Simpson**, **Jacob Stall**, **Travis Theel**, **Kelsey Vanderwerf**, **Rebecca Willprecht**, **Luke Winge**, and **Tanner Zach**. Four of our students also completed a Botany minor.

Kudos to Jason Augspurger

We offer our special congratulations to undergraduate student **Jason Augspurger**. Jason is a Wildlife and Fisheries Sciences major from Columbus, NE, who just completed his B.S. in 3 ½ years. Jason was recognized as one of only four students graduating *with distinction* from the SDSU Honors College this semester. This recognition was conferred at the SDSU Honors College Medallion Ceremony on December 9. Thanks for making the department look so good, Jason!

The graduate school selection process

Former graduate students **Mark Kaemingk** and **Hilary Meyer**, current Ph.D. student **Dan Dembkowski**, and

SD Cooperative Fish and Wildlife Research Unit Assistant Leader **Dr. Larry Gigliotti** completed a survey of prospective graduate students and faculty members sent to 50 universities in the National Association of University Fisheries and Wildlife Programs. Faculty rated the importance of various criteria and attributes of graduate school, and students answered the questions according to how they believed faculty members would respond. Overall, undergraduate students shared many of the same graduate school viewpoints as those held by faculty members. However, viewpoints differed on some topics related to admittance and the most important accomplishment of a graduate student while enrolled in a graduate program. These results indicate that undergraduate students may be better prepared for graduate school—and they may understand how to be successful once they are enrolled in a program—than was initially thought. However, undergraduate students underestimated the value of an independent research project and/or publication to faculty members who were selecting students for graduate assistantships.

Kaemingk, M.A., D.J. Dembkowski, H.A. Meyer and L.M. Gigliotti. 2013. Insights for undergraduates seeking an advanced degree in wildlife and fisheries sciences. *Fisheries* (Bethesda) 38:483-490.

Click on the following link to see a copy of that paper. <http://pubstorage.sdstate.edu/wfs/NRM-105.pdf>

New grassland ecology position

Thanks to good efforts by our search committee (**Dr. Sandy Smart** [chair], **Dr. Lora Perkins**, Office Supervisor **Terri Symens**, and **Dr. Jon Jenks**), we will interview candidates for an assistant or associate professor of grassland ecology during mid-January of 2014. We are hoping, of course, for a warm spell during that time period so if any alumni or friends have any influence on the weather, please use that skill set in our favor. This is a new position for the department and the SD Agricultural Experiment Station this past legislative session. We hope to find a new colleague with a skill set to complement the skills for our current range and botany faculty members.

Social at Midwest Fish and Wildlife Conference

For those of you attending, we will again host an SDSU Social for alumni and friends at the 74th Midwest Fish & Wildlife Conference, January 26 - 29, 2014 at the Sheraton Kansas City in Kansas City, Missouri. Dr. KC Jensen has been kind enough to arrange these social for quite a few years. Stop and visit if you are at the conference. **Rumor:** Chuck Scalet may be there!

Photo Gallery: the Bauman crew

Here are some great pictures of his photogenic kids from Pete Bauman, our Range Extension Field Specialist stationed up in Watertown.



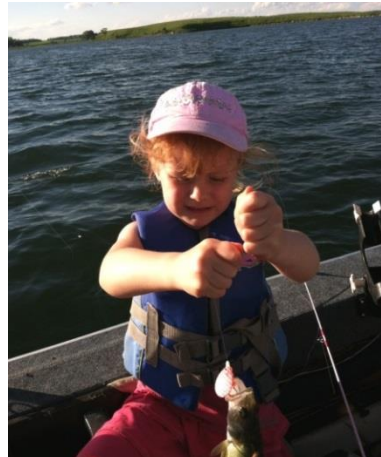
Charlie with a largemouth bass from Lake Cochrane.



Jake with a smallmouth bass from Enemy Swim Lake.



Connor with a smallmouth bass from Lake Poinsett.



Avery with her walleye!

Potential Bad News for Wetlands Inventory

This bad news is not certain, but Wetland Inventory Director **Mike Kjellsen** and I thought we should at least put out a preliminary notice. After decades of outstanding performance, we have reached a “pinch point” in funding for the Wetland Inventory group. As of this moment, funding beyond December of 2013 is uncertain. Much of this uncertainty relates to federal funding issues, which of course remain on hold awaiting resolution of federal budget issues. If any alumni and friends out there have wetland inventory needs, no matter how small, please consider contacting Mike. We will provide more substantive updates in the coming newsletters.

North Farmhouse at Oak Lake Field Station

Those of you with memories from Oak Lake might be interested in these two photos from Station Director **Nels Troelstrup**. Physical Plant personnel squeezed in the demolition on the last nice, warm day (December 2).



North farmhouse at Oak Lake prior to demolition.



North farmhouse site at Oak Lake after demolition.

Proud of the Range Club

I certainly am proud of the Range Club. Club President **Morgan Myers** routed their meeting minutes from November 13, and she reported some truly impressive support for club members to get to the Annual Meeting of the Society for Range Management (SRM), February

8-13, 2014 in Orlando, Florida. The Range Club will be paying for student hotel rooms **and** for the SRM Convention Student Member Registration (\$135). Club members and club advisor, please accept a “virtual” pat on the back.

Grassland ecology field work



*Range Science majors **Kelsey Ducheneaux** and **Brant Douville** collecting data for their undergraduate research projects under the direction of **Dr. Lora Perkins** at Badlands National Park. Cool picture, eh?*

South Dakota Grassland Coalition

Access the newsletters from our colleagues at the SD Grassland Coalition here:

<http://www.sdgrass.org/newslettersnews.html>.

Dr. Sandy Smart serves as newsletter editor.

Wildlife & Fisheries Conservation Club (WFCC)

The WFCC is a student chapter of The Wildlife Society (TWS). 2014 officers were elected in December 2013. Again, our sincere thanks to these students for their willingness to serve!

President - **Jessica Ring**

Vice President - **Savanah Allard**

Secretary - **Matt Gottlob**

Treasurer - **Tyler Solano**

Ball caps in at SDSU Bookstore

A new order of departmental ball caps has arrived at the SDSU Bookstore. Students can purchase caps at the Bookstore. Alumni and friends can order them online at (<http://www.jackrabbitcentral.com/hats>).



Fiscus Speaker Endowment

Clifford Fiscus (B.S., Wildlife and Fisheries, 1950) provided an endowment to the Department through the SDSU Foundation in 2004 to be used to bring outside speakers to our campus. During fall of 2013, those funds supported two speakers.

Dr. David Trauger, Virginia Tech University (retired), *Clinging to the Cliff: Wildlife Conservation on the Energy Downslope*

Doug Schultz (B.S., Wildlife and Fisheries, 2003), Minnesota Department of Natural Resources, *Leech Lake Management: Walleyes, Cormorants, and Human Dimensions*

Memory Lane: coffee machine

Office Supervisor **Terri Symens** thought this story would interest many alumni. *Out with the old, in with the new – department coffee maker that is!* Terri says that the old coffee maker was here when she arrived in 1991 and I know it was here when I arrived in 1987. Any alumni know the date of origin?



Out with the old (top) and in with the new (bottom)!

South Dakota Coop Unit turns 50! – Dr. Steve Chipps

“The South Dakota Cooperative Fish and Wildlife Research Unit recently celebrated our 50th anniversary at SDSU. The Unit hosted a BBQ picnic in September,

where we were joined by alumni, cooperators, students and colleagues for an afternoon of food, games and door prizes at Oakwood Lake. Established at SDSU in 1963, the South Dakota Coop Unit has been ‘home’ to 16 Unit scientists and over 240 graduate students. **Dr. Rollin ‘Rolly’ Sparrowe** was the Unit’s first graduate student who later went on to serve as Chief of the Cooperative Research Unit program (1976-1983) and then as President of the Wildlife Management Institute. Today, the Unit enjoys a strong tradition of Cooperator support and regional influence on fish and wildlife management, owing to the dedicated work of Unit students and staff. Fish and wildlife research at the South Dakota Unit was anchored by the long-term careers of several Unit scientists including Unit Leaders, **Dr. Ray Linder** (1967-1985) and **Dr. Charles ‘Chuck’ Berry** (1985-2010) whose combined service totaled 42 of the last 50 years --- and **Dr. Kenneth Higgins**, who served as Assistant Unit leader for over 20 years (1985-2006). With 50 years behind us, the Unit looks forward to the future and a continued tradition of addressing the needs of our State and Federal Cooperators. For more information about the history of the South Dakota Coop Unit, please visit our web page at [http://www.coopunits.org/South_Dakota/Documents/.](http://www.coopunits.org/South_Dakota/Documents/)”



“My involvement with the South Dakota Coop Unit has opened up a number of opportunities for me to interact with prominent scientists in the US Geological Survey and gain exposure to a broad range of professional opportunities in my field” – **Adam Janke** (current Wildlife and Fisheries Sciences Ph.D. student).

News Release from “South Dakota Wing”

“Volunteers from the South Dakota Wing (SDWG) of the Civil Air Patrol (Official Auxiliary of the U.S. Air Force) have been helping graduate student researchers from South Dakota State University track bighorn sheep, mountain lions, elk, wild turkeys, and even endangered grey foxes in cooperation with South Dakota Game Fish and Parks Department in research of these wild animals. Often, not all the animal’s tracking collars can be found from the ground, so researchers rely on SDWG to fly

them using CAP aircraft and their radio-direction-finding/ homing expertise to help find these collars. Recently, Mission Pilot Lt. Col. Gary Hewett of the Rushmore Composite Squadron (Rapid City) took to the air with SDSU bighorn sheep researcher, **Ms. Brynn Parr**. Brynn currently has 17 ewes (female sheep), 6 lambs (young sheep), and 7 rams (male sheep) tagged with radio collars on Elk Mountain in the Black Hills just west of Custer. Eight of these collars are store-on-board global positioning system (GPS) collars, and the remaining 22 are VHF radio collars. The GPS collars collect the animal's location each day along with other data such as temperature, altitude, activity (via number of movements), etc., and store the data on the collar. Although GPS collars are great, they're expensive: \$1,000-\$1,500 each. All of the collars are programmed to fall off approximately one year from the date they were deployed. In order to access the data stored on the collars, researchers need to find them when the collar falls off or the animal dies, so they can download the data to their computers. The VHF collars do not collect data; they simply allow researchers to locate the collar (and the animal) without GPS data. Both GPS and VHF collars give off live and mortality signals. The rates of the beeps are different for each collar; the live signal for a GPS collar is approximately 1.5 beeps per second, and the live signal for a VHF collar is approximately 1 beep per second. When the collar has remained stationary for 8 hours, the collars will switch over to a mortality signal, which is twice the rate of the live signal (~3, 2 beeps per second, respectively).

Since the beginning of the latest sheep research project, they have lost nine sheep to predation, four to unknown causes, and three to problems associated with being a weak lamb. The collars allow the researchers to determine survival rates for both adults and lambs, as well as find the carcass of deceased sheep to identify specific causes of mortality. Brynn uses both an omnidirectional and a directional antenna to track the locations of the sheep multiple times a week. She records locations, number of sheep, classifications of the sheep, time, activity, and the frequencies of the collared sheep in the groups. This data allows researchers to estimate the bighorn sheep population on Elk Mountain, as well as assess their movements and determine home ranges, which greatly assist the management of this herd by both S.D. Game, Fish & Parks and also the Wyoming Game and Fish. Researchers are also evaluating the prevalence of disease and genetic diversity in the bighorn sheep through samples collected at the time of the sheep capture. This information is also used to help manage the herd.

The reason for the most recent flight was to find a single GPS-collared ewe. The ewe was last heard from the ground in late September, 2013. On the first weekend of October, the Black Hills area was hit by Winter Storm Atlas, described as "a storm of the century". Some places received more than 5 feet of snow, and some areas had drifts exceeding 20 feet deep driven by the +70 MPH wind. After the storm, Brynn was unable to detect the ewe's signal from the ground. As a few of the GPS collars had stopped transmitting a signal, Brynn assumed this particular collar had quit transmitting as well. All ewes receive an ear tag at the time of capture, which allows for identification of individual ewes wearing collars that do not work. After finding large groups of sheep in late October and early November for breeding, Brynn was able to use the ear tags to determine that the specific lost sheep was no longer in these groups. So she called SDWG which has a memorandum with the State of South Dakota for situations just like this.

SDWG aircraft are tracked in near-real-time by the operations staff through an onboard device called "Spider Track." The device also leaves a historic trail of where the aircraft flew. The details for this particular flight can be found at the Spider Track website (<https://go.spidertracks.com/fleetpro/public/civilairpatrol/>). To find a spider track of the flight, left click the white "Tracks" link, and after the list populates select the flight for N158CP on 14 Nov 2013. The aircraft normally flies these electronic searches about 110 knots true airspeed (~126mph), at an altitude of about 2000 feet. In cases of a weak collar signal or if there is a need for a more precise location, the aircraft will go somewhat lower to around 1000 feet. As seen on the "Spider Track", the lost sheep was located just west of the Wyoming-South Dakota state line. Since the crew found the ewe so quickly, Brynn took the opportunity of being airborne to search for another sheep to the southeast of where the ewe was located. This was also a GPS collar on a ram. The ram's collar gave off a beep roughly every 5 seconds. This means the collar is failing, but the beep indicated it was still giving off a signal, and therefore still traceable. This was a very short animal tracking mission to locate bighorn sheep. Some longer flights in the past year have taken as much as 4.6 hours to locate mountain lions, some of which are on the move. The area of coverage for this flight was very specific; sheep were located on and around Elk Mountain, which is west of Custer, on the Wyoming-South Dakota state line. Brynn knew about where the lost sheep was last located and the pilot headed directly for that spot. Within minutes of starting the search, the crew heard the beeping collar through their tracking equipment. The fast pattern of the beep of the ewe's collar (approximately

2.5 beeps per second) indicated that the sheep was in one place for at least eight hours. A stationary collar can mean two things: 1) the collar fell off, or 2) the animal is dead, from predation, hunting, or disease. Also, as seen on the Spider Track, after the crew located the lost sheep, the aircraft flew to the southeast. Brynn wanted to locate one more sheep's collar that she had not heard for some time. Just a few minutes later, they found that sheep too. Although the signal was not normal, the sheep had moved from its last known location, and therefore, assumed to be alive. Mission complete, the aircraft returned to Rapid City.

Later that same day, Brynn found a collar on a dead sheep and removed it. The data on the collar was downloaded and it was determined that the sheep had been dead for a little over a month.”

Governor's Pheasant Habitat Summit

On Friday, December 6, it was my pleasure to attend the Governor's Pheasant Habitat Summit in Huron, SD. Also attending from SDSU was **Dean Barry Dunn**, who was a keynote speaker, as well as **Drs. Troy Grovenburg, KC Jensen, Sandy Smart**, and our Range Field Specialist **Pete Bauman**. Many of our friends and alumni within the conservation community were present, and the SD Grassland Coalition was well-represented by folks such as **Jim Faulstich, Judge Jessop, and Lyle and Garnet Perman**.

My cell phone didn't do a great job of taking a picture of the panel of morning speakers, but here they are during the Q&A session.



Left to right are **Barry Dunn**, Dean of our College of Agriculture and Biological Sciences at SDSU (with three degrees from SDSU); **Dave Nomsen**, Vice President of Government Affairs for Pheasants Forever (B.S. and M.S., SDSU); **Bruce Knight** (SD rancher and former head of the NRCS in Washington DC [and an SDSU grad]); **Tony Leif**, Director of the Wildlife Division for SDGFP (BS from SDSU prior to heading “south” for his MS); and **Jim Hagen**, Secretary for the SD Department of Tourism.

Jeff Vonk, Secretary of SDGFP, did a great job of hosting the summit, which was attended by some 400-500 people. Representation seemed to be across the board at the summit, including both the conservation

community and agricultural leaders. I was pleasantly surprised when **Governor Dennis Daugaard** introduced the morning session, and then stayed for the entire day, including the wrap-up session after the small group breakout sessions in the afternoon. When **Senator John Thune** arrived late morning and addressed the crowd on the importance of the task, I was even more hopeful that results could come from this summit. Senator Thune has certainly been a proponent of conservation issues and conservation compliance in the Farm Bill. I received many positive comments that Dean Dunn's presentation on land use changes in SD was factual and unbiased, as would be expected from a land-grant university.

The next step will be for a Task Force to be convened by Governor Daugaard and assess the recommendations that arose from the meeting. Let's hope that some good actions will result. The morning sessions were broadcast live by South Dakota Public TV, and the presentations are all available at the following web site.

<http://www.gfp.sd.gov/pheasantsummit/default.aspx>

In addition, a summary of the breakout-session recommendations will also be posted there.

AFS Student Subunit

Members of the American Fisheries Society (AFS) Student Subunit elected their 2014 Subunit Officers. The following individuals were elected, and we certainly thank them for their willingness to serve!

President: **Laura Heironimus**

Vice President: **David Schumann**

Secretary: **Jeremy Kientz**

Treasurer: **Matt Wagner**

Photo from the Archives

Office Supervisor **Terri Symens** also found this 2004 digital image in her files, and thought we should share it. While I am not sure that this photo really is “archival,” we certainly have had many changes in this past decade!



Left to right: **Chuck Scalet, Dan Hubbard, Dave Willis, Mike Brown, and KC Jensen** in 2004. Certainly less gray hair than 2014. ☺

Donors via SDSU Foundation

Following is a list of NRM donors for January through part of November in 2013. We very much appreciate these donors, whose funds went to scholarships, a departmental account, or research endowments for NRM. If you did donate within this time period and do not see your name, please bear with us as the donation likely was reported to us outside the January-November window of time. Hopefully, we will catch it with the next newsletter. Many thanks for our wonderful assistance from the **SDSU Foundation** folks!

3M - Matching Gifts

*Andrew Kopp
Anissa Galyen
AstraZeneca Pharmaceuticals LP
Barry and Jane Dunn
Blaine Brothers Inc.
Boyer Trucks
Brookings County Pheasant Restoration Association
Brookings Wildlife Federation
Bruce Bleakley
Bruce Condello
Carrol and Janice Calkins
Carroll Hanten
Charles and Marcia McMullen
Chuck and Ginger Scalet
Clifford Fiscus Estate
Curtis and Sara Vacek
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George and Lynne Partelow
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James and Marjorie Hubert
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Lee Roy Mitchell
Lester and Marcia Flake
Lyle and Garnet Perman
Mary Barkworth
Mike and Elaine Brown
Morris and Marcene Radack
Nels Troelstrup, Jr.*

*Paul Vohs, Jr.
Pete and Lisa Bergmann
Pfizer Foundation
Ralph and Helen Town
Redfield Energy, LLC
Robert Bartling
Roger and Vonda Gates
SD Soybean Research & Promotion Council
SD Walleyes Unlimited
Sioux Falls Chapter of Izaak Walton League
Spencer Vaa
Stephen Zebarth
Thomas and Mary Gengerke
Troy Grovenburg
Valerie and Thomas Cheesbrough
Zeno Wicks, III and Roxanne Savaryn-Wicks*

We also had three **anonymous donors**, all of whom do receive this newsletter (i.e., you know who you are! ☺).

Wide range in graduate student research topics

I wanted to find some way to communicate to our alumni and friends the tremendous diversity in research occurring in the NRM Department. Following is a list of graduate students compiled back in **May of 2013** (we currently are compiling an updated list for January of 2014). Several students have graduated since then and we have added new students since then. However, my purpose here is simply to show the wide range in research topics undertaken by our graduate students and faculty members. We are in the business of educating students, and mentoring research activities is one of our most effective teaching strategies!

Student Name	Project Title	Advisor
Barnes, Michael	Effects of probiotics on the immunology and hatchery performance of salmonids	Brown
Bennett, Joe	Plant adaption to drought	Perkins
Beasley, Bret	Above-ground food resources for sandhill cranes throughout the Intermountain West Corridor	Fredrickson
Bhoir, Prajakta	Nutritional ecology of mountain lions	Jenks
Blay, Nick	Does climate warming decouple food web interactions in Great Plains streams?	Bertrand, Graeb
Boyda, Eric	Evaluation of the reference unit method for herbaceous biomass estimation in grasslands	Xu, Butler
Breeggemann, Jason	Growth potential of walleye in Devils Lake, North Dakota	Graeb
Bruce, Timothy	Immune and endocrine stress response modulation associated with enhanced plant-based protein diets	Brown

Carlson, Andrew	Catastrophic flood effects on aquatic resources in Missouri River reservoirs	Graeb
Chowanski, Kurt	Black Hills silvopasture	Gates
Cressey, Ryann	Dynamics of wetland and grassland wetland ecosystems in the Northern Great Plains	Stafford
Crider, Brandi	Modeling efficiency of nitrogen extraction by lactating female white-tailed deer	Grovenburg, Jenks
Cudmore, Kris	Black Hills deer population	Jenks
Datta, Shubham	Breeding ecology of ferruginous hawks and golden eagles in north-central and western South Dakota	Grovenburg
Dembkowski, Dan	Smallmouth bass and yellow perch interactions in eastern South Dakota glacial lakes	Wuellner, Willis
Deslauriers, David	Foraging ecology and growth potential of larval pallid sturgeon in the Missouri River	Chippis
Dupey, Justin	Exotic invasive grasses in the Northern Great Plains: Management alternatives for control	Jensen
Erickson, Lee	Avifauna of the EcoSun Prairie Farm	Jensen, W.C. Johnson
Felts, Eli	Population estimate, exploitation, movement and mortality of Lake Oahe walleye as inferred from tagging	Graeb
Garrett, Victor	Climate influences on beaver pond sustainability and ecosystem services at Voyageurs National Park	Johnston
Gerdes, Cassidy	Keya Paha watershed enhancement multistate project to identify factors that promote persistence of fish species of greatest conservation need	Bertrand
Gottlob, Matthew	Canada geese in eastern South Dakota	Dieter
Graff, Brianna	An assessment of direct mortality to avifauna from wind energy facilities in North Dakota and South Dakota	Grovenburg
Grey, Michael	Novel conversions of plant feedstuffs for commercial aquafeed applications	Brown
Grote, Jeff	Walleye stocking success in South Dakota natural lakes	Wuellner
Haffley, Trenton	Movements, survival, and sightability of white-tailed deer in southeastern South Dakota	Jenks
Hayer, Cari-Ann	Distribution, reproduction, and potential impacts of newly invaded Asian carp in the James River, South Dakota	Bertrand, Graeb
Heironimus, Laura	Development of a bioenergetics growth model for pallid sturgeon larvae	Chippis
Helms, Emily	Evaluation of mob grazing by South Dakota producers	Smart

Henderson, Kjetil	Evaluating the value of the Internet for the collection of scientific data (use, harvest and attitudes) from anglers	Gigliotti
Hendrix, Mark	Prairie Dogs and Biodiversity in Custer State Park	Gates
Hitt, Ashley	Wetland dynamics at Agassiz National Wildlife Refuge	Jensen
Ims, Shannon	Effects of intensive early season grazing and patch-grazing on structural heterogeneity	Smart
Inselman, Will	Effects of wind energy on buteo ecology: an intensive study of Swainson's hawks on the Northern Great Plains	Grovenburg
Janke, Adam	Evaluating wetland-ecosystem health in the prairie pothole region of South Dakota using real-time nutrient dynamics of waterbirds	Stafford
Juarez, Rebeca	Estimating population size of mountain lions using DNA markers	Jenks
Kafle, Arjun	Assessing ecological status of Wadeable streams using midge communities in the Northern Glaciated Plains Ecoregion	Troelstrup
Kaiser, Chad	Selection and validation of regional reference sites and development of indices of biotic integrity for the Northwestern Great Plains Ecoregion	Bertrand, Troelstrup
Kaufman, Todd	Fish community ecology in northeastern South Dakota lakes	Willis, Blackwell
Kientz, Jeremy	Natural reproduction of rainbow trout in Castle Creek, SD	Chippis
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