

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

NRM Newsletter

Department of Natural Resource Management

Fall 2019

Department of Natural Resource Management Newsletter

Department of Natural Resource Management

Follow this and additional works at: https://openprairie.sdstate.edu/nrm_news



Faculty

- ◇ Michele Dudash ... Department Head & Professor
- ◇ Alexander (Sandy) Smart ... Assistant Dept. Head & Professor
- ◇ Mike Brown ... Professor
- ◇ Steven Chipps ... Volunteer Professor/Unit Leader USGS
- ◇ Krista Ehler ... Asst. Professor/Extension Range Specialist
- ◇ Bruce Eichhorst ... Instructor/OLFS Assistant Director
- ◇ Larry Gigliotti ... Volunteer Asst. Professor/Asst. Unit Leader USGS
- ◇ Jonathan Jenks ... Distinguished Professor
- ◇ Kent Jensen ... Associate Professor
- ◇ Maribeth Latvis ... Assistant Professor
- ◇ Joshua Leffler ... Assistant Professor
- ◇ Robert Lonsinger ... Assistant Professor
- ◇ Don McCrea ... Instructor
- ◇ Lora Perkins ... Associate Professor
- ◇ Onja Razafindratsima ... Assistant Professor
- ◇ Joshua Stafford ... Volunteer Assoc. Prof/Asst. Unit Leader USGS
- ◇ Lan Xu ... Professor
- ◇ Charles Fenster ... NRM Affiliate Professor/OLFS Director
- ◇ Stella Liu ... NRM Affiliate Assistant Professor

SDSU Extension Specialists

- ◇ Pete Bauman ... Range Field Specialist
- ◇ James Doyle ... NRM Field Specialist
- ◇ Katherine Jaeger ... Youth Outdoor Education Field Specialist
- ◇ Sean Kelly ... Range Management Field Specialist

Staff

- ◇ Beth Byre ... Accountant
- ◇ Jiyoun Kim ... Support Staff
- ◇ Duane Olson ... Field Station/WLRU Grounds Keeper
- ◇ Kathryn Tvedt ... Support Staff

Department of Natural Resource Management
 South Dakota State University
 SNP 138, Box 2140B
 Brookings, SD 57007
 (605) 688-6121
 Email: SDSU.NRM@sdstate.edu

- <http://www.sdstate.edu/nrm>
- <https://www.facebook.com/SDStateNaturalResourceManagement>
- <https://www.facebook.com/pages/SDState-Natural-Resource-Job-Announcements/699103456779362?sk=timeline>
- <https://twitter.com/SDStateNRM>



Dear NRM Alumni, Donors, and Friends,

Where does the time go? WELCOME to a new decade! Needless to say, we had a very busy and productive fall semester! We started the academic year by hosting our first NRM Advisory Board meeting to attain insights from senior personal representing agencies we frequently interact with and accomplished alumni representing our scientific disciplines. The goal was to utilize their collective expertise to determine how best to achieve our departmental goals and mission. The meeting was held at Oak Lake Field Station and it was an important opportunity to share our strengths in addition to our challenges as we plan for the future.

We once again need to report changes in our NRM faculty. Associate Professor Brian Graeb voluntarily resigned from his tenured position and moved into an Adjunct Associate Professor position. In this new position within NRM, Brian will be teaching both Principles and Advanced Fisheries Management during spring 2020. Additionally, Professor Pat Johnson retired in October and her Brookings retirement seminar and reception is Jan 31st. The immediate goal of NRM is to hopefully add expertise in quantitative fisheries and wetland/aquatic sciences to enable us to maintain both our teaching and research strengths.

Oak Lake Field Station continues to be an important component of our department owing to the number of courses that utilize it as a field site. NRM enhanced our teaching infrastructure by purchasing a pontoon boat to allow us to expose our students to up-to-date aquatic teaching techniques under ideal field conditions. This new teaching resource will be utilized in a number of our aquatic field courses based at the station. Additionally, our groundskeeper, Tom Reeves, retired and we all wish Tom the best in his next act! I am also pleased to share that we were able to hire Duane Olson into this position and he has been a great addition to the NRM team. Please let us know if you are in the area, we would love to visit in person.

We all hope that you have a healthy, fun, and fulfilling 2020!
 Michele

American Fisheries Society (AFS) Student Chapter
 Advisor: Mike Brown, Steve Chipps
 President: Cade Lyon
 Vice President: J Dalton Flahaven
 Treasurer: Tanner Davis
 Secretary: Brandt Boekhout

Ecology Club
 Advisor: Lan Xu
 President: Bailey Beauchamp
 Co-Vice President: Emily Knutson, Madeline St.Clair
 Secretary: Zoey Huntley
 Treasurer: Paul Fogarty

Botanical Society of America (BSA) Student Chapter
 **BRAND NEW!**
 Advisor: Maribeth Latvis
 Members:: Sarah Herzog & Jordan Purintun

Natural Resource Law Enforcement Club (NRLE Club)
 Advisor: Don McCrea
 President: Kyle Sim
 Vice President: Maria Guzzetta
 Treasurer: Kayla Pring
 Secretary: Joseph Kretchman
 Public Relations: Daniel Fraser

Range Club
 Advisor: Sandy Smart
 President: Ryan Swanson
 Vice President: Eric Puetz
 Secretary/Treasurer: Elle Moon
 Prexy Council/Social Media: Aubrey Weishaar

Wildlife and Fisheries Conservation Club (WFCC)
 Advisor: KC Jensen
 President: Nicholas Peterson

Natural Resource Management Homecoming Day Float 2019



We would like to thank all of our students and faculty who helped decorate and participate in the parade!

Michele Dudash, Maribeth Latvis, grad students: Abby Blanchard, Sarah Herzog, Deva Khanal, Izzy Vilella-Arnizaut, and undergrad students: Bailey Beauchamp, Maria Guzzetta, Jenna Schauer, Madeline St. Claire, Ryan Swanson, Zachary Swenson.



Professor Mike Brown awarded the College level Walt McCarty Award of Excellence in Academic Advising.

We are very pleased that Mike Brown has been awarded the Walt McCarty Award for Excellence in Academic Advising in the SDSU College of Ag, Food and Environmental Sciences. This is a well-deserved award for demonstrating Mike's commitment to mentoring the next generation of Natural Resource professionals.

Associate Professor Lora Perkins and Assistant Professor Josh Leffler have received the 2018 Bradshaw Medal.

The medal was awarded for their paper in Restoration Ecology which was selected by the Editorial board because of its outstanding contribution to the field of restoration ecology.

This year's awards winners are "a group of outstanding people and projects that truly represents the richness and diversity of ecological restoration around the world," said Ramesh Venkataraman, SER's Awards Committee Chair.

Full article: <https://www.sdstate.edu/news/2019/10/two-sdsu-faculty-receive-international-ecology-award>

Publication: <https://onlinelibrary.wiley.com/doi/full/10.1111/rec.12881>



Assistant Professor Maribeth Latvis is a co-PI on a 4 year collaborative NSF award with colleagues from Alabama, Louisiana, Kansas, and West Virginia!

The award is a "RII Track-2 FEC: Consortium for Plant Invasion Genomics (CPING): Combining Big Data and Plant Collections to Understand Invasiveness."

The overall goal is to create BIG DATA training network among EPSCoR states. Specifically, researchers are focusing on building skillsets involving genomics and bioinformatics related to the biology of invasive plants across north America. (More info: https://www.nsf.gov/awardsearch/showAward?AWD_ID=1920858)



Assistant Professor Krista Ehlert awarded grant from North Central Region Sustainable Agriculture research and education program.

She was awarded the grant for the project, "Investigating Rangeland Systems and Practices: Enhancing Sustainable Agriculture Curriculum in South Dakota." The goals of this project are to assist in curriculum development for South Dakota teachers focused on sustainable/regenerative agricultural practices with a focus on rangeland systems. (<https://www.northcentralsare.org/>



<https://www.northcentralsare.org/Newsroom/Regional-News-and-Press-Releases/NCR-SARE-Announces-2019-Research-Education-Graduate-Student-and-Professional-Development-Awards>)

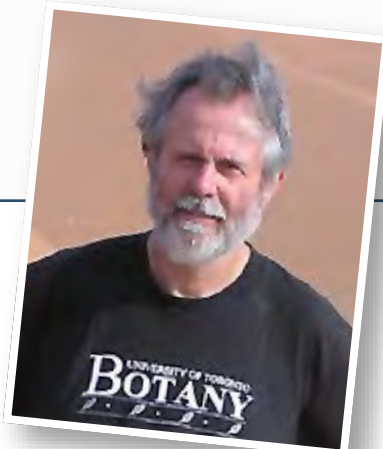
Congratulations all!

Fall 2019 Seminars

Sep 06 Michele Dudash, NRM	... Introduction and Info Session
Sep 13 Rob Lonsinger, NRM	... For Fox Sake...
Sep 20 Spencer Barrett, U of Toronto	... Plant reproductive evolution at geographical range limits Evolutionary ecology and genomics of plant sexual diversity
Sep 27 Stella Liu, NRM-CPPM Affiliate	... Making connection between people, place, and plan: A road map to manage parks and outdoor recreation
Oct 11 Pamela Fehr, NRM UG	... REU: A Finland Experience
Oct 18 Krista Ehlert, NRM	... To Extension and Beyond
Oct 21 Larry Nielsen, N Carolina State	... Nature's Allies: Lessons from the Great Conservationists of the Past
Oct 25 Kas Williams, SDSU Diversity	... Diversity, SDSU, and You
Nov 01 Shiva Torabian, NRM Grad	... Habitat suitability of the sand cat
Cailee Peterson, NRM UG	... REU: An Alaskan Experience
Nov 08 Robby Schaeffer, NRM Grad	... Eastern red cedar and prescribed fire effects on soil
Nov 15 Isabella Vilella, Bio-Micro Grad	... Plant-pollinator networks
Mandy Ensrud, NRM Grad	... Bighorn Sheep Chronic Shedder Removal in Western SD
Nov 22 Marlin Dart, NRM Grad	... Bobcat Occupancy research
Jessica Richert, NRM Grad	... The role of winter snow cover in growing season forage
Ben Turner, Texas A&M	... A systems approach to soil and water conservation

Dr. Spencer Barrett

Spencer, Professor at University of Toronto, Canada presented "Plant reproductive evolution at geographical range limits" on Friday, September 20th at the NRM790 class and met our graduate students over lunch.



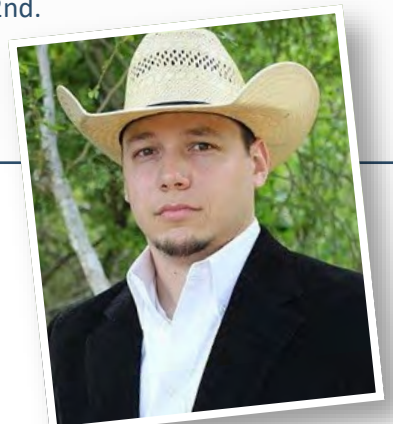
Dr. Larry Nielsen

Larry, Professor Emeritus of Natural Resources at North Carolina State University, Raleigh, presented "Natures Allies; Lessons from the Great Conservationists of the past" on Monday, October 21st and met our graduate students over lunch.



Dr. Ben Turner

Ben, NRM Alumnus and Assistant Professor, Department of Ag, Agribusiness, and Environmental Sciences and King Ranch Institute for Ranch Management at Texas A&M, Kingsville, presented "A systems approach to soil and water conservation" on Friday, November 22nd.

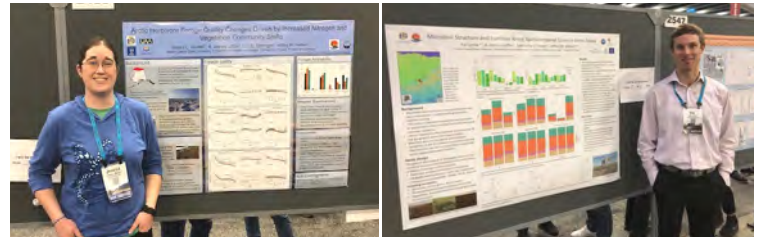


NRM Career & Job Fair

The fair was held on Tuesday, November 19th 5:30-8pm in McFadden Biostress Lab Atrium. **Thanks very much** to the organizations for participating and introducing the professional world to students: USDA-NRCS, SD GFP Parks Division, SD GFP West River Hatchery, The Nature Conservancy, US Army Corp of Engineers, US Fish and Wildlife Service.



NRM Students Attend the Fall Meeting of the American Geophysical Union in San Francisco, CA



(Top row from left) Jessica Richert (Grad) & Kaj Lynoe (Grad)
(Bottom row from left) Heidi Becker (Grad) & Caillee Peterson (UG)

Three graduate students from NRM recently traveled to the annual Fall Meeting of the American Geophysical Union (AGU) to present their research sponsored by the National Science Foundation. The AGU Fall Meeting is one of the largest gatherings of physical and biological scientists in the world with over 20,000 attendees coming from over 80 countries worldwide. It is also the premier venue for reporting research on Arctic systems. **Jessica Richert** presented a poster entitled, “Arctic herbivore forage quality changes driven by increased nitrogen and vegetation community shifts”. She detailed the impact of experimentally increased snowfall on the nitrogen content of Arctic shrubs suggesting that additional snow can extend the value of this forage further into the summer and fall. **Heidi Becker** presented a poster entitled, “Climate warming alters caribou forage quality in northern Alaska”. Her research, however, suggests that warmer summers may decrease forage quality primarily by decreasing leaf nitrogen. Moreover, declines in forage quality in response to warming can be very rapid. Finally, **Kaj Lynøe** presented a poster entitled, “Soil microbial structure and function across spatiotemporal scales of Arctic Alaska. He demonstrated that microbial communities are relatively stable in Arctic systems through time even as microbial biomass changes. Furthermore, community distinctions are primarily driven by pH and soil moisture with the abundance of sulfate reducing bacteria the largest difference in community composition between wet and dry sites.

AFS Subunit News

Hello, I am **Brandt Boekhout**, the secretary for the AFS subunit. This fall we helped GFP with the annual chinook salmon spawn at Whitlock Bay Spawning Station. We also held a resume and cover letter workshop this semester. As far as next semester goes, our big event is the Dakota Chapter AFS meeting, which is in Spearfish, SD this year. We also plan on doing an interview workshop and a movie night.



Zach Kozel (top left), Brandt Boekhout (top right), & Seamus O'Conner (bottom left)



Brady Dickerson (left) & Zach Kozel



Dalton Flahaven (left) & Brandt Boekhout

NRM Botanist / Herbarium Director to analyze history of Russian thistle invasion

Maribeth Latvis is part of a five-university team who will use historic plant collections to study the evolution of invasive species. This research is done through Consortium of Plant Invasion Genomics or CPING.

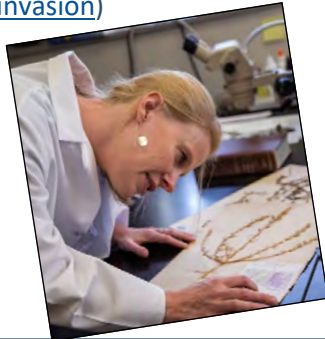
"We're using natural history collections in novel ways to build datasets that track invasive species through time and space," said Latvis, who is director of SDSU's C.A. Taylor Herbarium.

The CPING researchers will also be training undergraduates and faculty from 60 institutions in 18 EPSCoR states.

"We sent questionnaires to other educational institutions within the EPSCoR states to identify researchers who are interested in learning about genomic and bioinformatics," said Latvis. The responses will help identify faculty scientists to participate in a five-day boot camp in year two of the grant. Training materials, tutorials and laboratory protocols will also be available to the public.



(<https://www.sdstate.edu/news/2019/09/sdsu-botanist-analyze-history-russian-thistle-invasion>)



Native Plant Initiative

Lora Perkins with a consortium of researchers, extension specialists, and stakeholders has begun working on South Dakota State University's Native Plant Initiative.

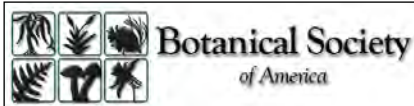
The group is focusing on research, education, and outreach to support excellence in native plant restoration and production in the Northern Great Plains. So far, NPI has had the opportunity to support several undergraduate interns and undergraduate and graduate research projects. This summer, NPI will have demonstration plots of native plants both on and off campus.

Check out their website at <https://www.sdstate.edu/npi>.

This Initiative is seeking financial support. Please contact us if you are interested.



(Front row from left) Bryanna Chipley, Heidi Becker & Jessica Richert
(Back row from left) Skyler Arent, Jacob Comer & Lucas Zilverberg



Botanical Society of America (BSA) - SDSU Student Chapter

The Botany Club, in partnership with the C.A. Taylor Herbarium, aims to support all forms of botany on campus: systematics, horticulture, forestry, agriculture, and gardening. Anyone with an interest, no matter their experience level, is welcome to join us for our activities. Last semester BSA organized a "Plants of Campus Walk" with campus horticulturist Tanner Aiken to hear how Facilities picks and maintains SDSU's landscaping. We took a walk around campus to see all the projects in development including sustainability efforts. Next semester BSA is working with McCrory Gardens to provide a public workshop on the importance of our herbarium as a public and academic resource. We are planning a plant collecting and preserving workshops as well. We have also worked with the NPI on their projects. We have many opportunities to learn about both native and cultivated plants!



Rob Lonsinger to examine bear harvest rates in Pennsylvania

Pennsylvania's black bear population is booming.

The population has increased from around 4,000 in the 1970s to about 18,000, according to the Pennsylvania Game Commission. "With that rising population comes human-wildlife conflict," said Rob Lonsinger, an assistant professor in the South Dakota State University Department of Natural Resource Management and a Pennsylvania native.

In 2002, Pennsylvania held its first bear hunting season in more than 50 years. Despite a record-setting harvest of 4,350 bears in 2011, wildlife officials have "not seen the dramatic declines in the population they expected," said Lonsinger, noting "females are the limiting factor in terms of growth rate."

Assistant Professor Rob Lonsinger will assess factors affecting female bear harvest rates in north central Pennsylvania through a grant from the Pennsylvania Game Commission.

He is collaborating with Pennsylvania game mammals section supervisor Matt Lovallo for the three-year project, which began in December. The approximately 100-square-mile study area is in the Appalachian Mountains in north-central Pennsylvania.

Last fall, the statewide bear hunting season was extended from approximately two weeks to 32 days. The muzzleloader season began in October, with an early November archery season and then in late November, a rifle season. "The idea behind this is by late November females are already starting to den. Starting the season sooner might increase the female harvest," Lonsinger explained.

With 4,577 bears harvested by Dec. 9, 2019, this may be the

largest bear harvest in state history. However, he pointed out, "We have not yet figured out if the increase is in males or females harvested."

Brandon Snavely, new NRM graduate student and a wildlife biologist aide at the Pennsylvania Game Commission, has already begun collecting data and will work on the project as a master student. The researchers will deploy GPS

collars on at least 40 female black bears. "This will give us a lot of location and movement data," Lonsinger said. This spring they will begin handling bears in the dens.

"We have a tremendous amount of in-kind support from the game commission," he said. The commission is purchasing the GPS collars and covering field expenses, including collaring and tracking the bears, and is also quantifying the food supply through vegetation and forage surveys. Acorns are an important source of energy for bears, he noted.

In addition, Pennsylvania wildlife officials capture and tag upward of 800 black bears annually and have been doing so for 17 years. "We have a pretty lush dataset with which to look at how many of the harvested bears are tagged and use that to estimate abundance," Lonsinger said. "The information on hunter activity will help us understand how these different factors affect female space use and ultimately harvest rates."

Article from <https://www.sdstate.edu/news/2020/01/sdsu-researcher-examine-bear-harvest-rates-pennsylvania>



AFS-TWS Joint Meeting Fall 2019, Reno NV

A number of faculty and students attended including Assistant Wildlife Professor Rob Lonsinger who presented on two research projects, and Dept Head and Professor Michele Dudash in a symposium. Other NRM attendees included PhD Fisheries student Seth Fopma, former PhD student Dr. Aaron Sundmark, and masters students Tanner Davis and Cade Lyon from Brian Graeb's lab.

Symposium: The 3 R's of Fish and Wildlife Translocations: Rescue, Reinforcement, and Re-establishment.

◆ Consideration of a Paradigm Shift in the Genetic Management of Fragmented Populations - **MR Dudash**, R

Frankham, J Ballou, M Eldridge, **CB Fenster**, R Lacy, K Ralls and P Sunnucks – The Wildlife Society, Reno, NV (Oral)

◆ Genetic Consequences of Population Decline in Kit Foxes: Insights from Historical Specimens and Implications for Management – **RC Lonsinger***, PM Lukacs, EM Gese, RN Knight, JR Adams, LP Waits – The Wildlife Society Meeting, Reno, NV (Oral)

◆ Swift Fox Diet and Prey Selection within a Black-footed Ferret Recovery Area: Evaluating the Potential for Intra-guild Competition and Predation – S Claeys*‡, **RC Lonsinger**, S Crimmins, K White – The Wildlife Society Meeting, Reno, NV (Poster)

More info: <https://afstws2019.org/>

The South Dakota Grassland Coalition:

A dedicated group fighting for grasslands by Sandy Smart

As part of my range extension duties at South Dakota State University, I have had the privilege to work directly with the South Dakota Grassland Coalition (SDGC). The SDGC started 21 years ago through an outgrowth of a joint Extension/NRCS range bootstraps program in conjunction with guidance from representatives of the National Grazing Land Conservation Initiative (now the National Grazing Land Coalition). Early on, the organizers wanted to make sure the structure of the board was grassroots based, meaning that the board of directors must own and manage grassland. This decision has kept the board grounded in their mission “to promote good stewardship of grasslands through sustainable and profitable management.” Grasslands are working lands and need to provide a profit in order to remain grassland otherwise the temptation to convert them to cropland is very high.

Over the years, the SDGC has grown in capacity to provide educational opportunities to ranchers, managers, natural resource personnel, and absentee landowners. Our front door is our website (www.sdgrass.org). We host information regarding our mission, vision, and goals. We advertise upcoming outreach events, host a blog, and publish the bimonthly newsletter. Recently, the SDGC has produced a video series entitled “Our Amazing Grasslands”, with numerous partner support, highlighting the great land stewardship of our South Dakota ranching families. The SDGC is probably best known for its South Dakota Grazing School, now in its 17th year. This 2½ day school runs twice during the same week in mid-September. Over the years, we’ve helped over 500 producers, managers, and resource personnel sharpen their grazing management skills. In addition to the grazing school, the SDGC hosts pasture walks, holistic resource management workshops, the annual Leopold Conservation Award tour, and an annual winter road show featuring a prominent practitioner.

The SDGC has gained the trust and confidence of partner conservation organizations, Extension, and producers. A new project, supported by a Conservation Collaboration Grant Agreement from NRCS, provides one-on-one consulting for Grazing School graduates where consultants are hired to conduct rangeland assessments and meet with the ranchers to discuss a holistic ranch planning framework.

Our greatest struggle is to win the war against land conversion. In the Great Plains, the surge in commodity prices between 2006-2012 helped turn over 2 million acres of grassland in the Dakotas alone. While the current farm economy is in a down cycle, the pressure to convert grassland is still at work. The SDGC’s greatest tool is education. If we can help producers see the value of grassland from a diversified livestock/crop perspective, marginal land that is still in grassland is less likely to get converted. Hopefully, the SDGC is turning the tide or at least slowing down the conversion rate with the outreach work we are doing. It occurs with one person at a time and one ranch at a time.



Professor Patricia Johnson retires after 33 years in Range Science at SDSU.

Pat was the second woman in the world to be hired into a range science faculty position. Throughout her career she has been awarded almost 10 million dollars in grants, has published 72 peer reviewed papers, has made over 130 presentations and is currently serving on the Society of Range Management Board of Directors through 2022. Pat now holds an Emeritus Professor position within NRM.

Art Donation by Alumnus Durand Cook

Durand Cook generously donated a beautiful Martin Solberg print, “Monarch of the Sky”, a Conservation signed edition. We enjoyed his recent visit to the department to deliver the print.



NRM Undergraduate Students receive College level Scholarships

Congrats to all of our students!

Cole Anderson – William and Byrne Griffith Scholarship fund, S.BS.WLF

Bailey Beauchamp – South Dakota conservation District Auxiliary Scholarship, S.BS.EES

Bailey Beauchamp – Paul C. Bauerle Scholarship in Natural Resources, S.BS.EES

Bailey Beauchamp – L. and C. Bainbridge Family Scholarship in Support of the Jackrabbit Guarantee, S.BS.EES

Brant Boekhout – Paul C. Bauerle Scholarship in Natural Resources, S.BS.WLF

Nathaniel De Jong – William and Byrne Griffith Scholarship Fund, S.BS.WLF

Cole Dummermuth – Delbert Bender Scholarship, S.BS.NRL

Phillip Hummel – William and Byrne Griffith Scholarship Fund, S.BS.CPP

Jessica Kading – William and Byrne Griffith Scholarship Fund, S.BS.WLF

Hannah Kast – William and Byrne Griffith Scholarship Fund S.BS.WLF

Cody Kneip – William and Byrne Griffith Scholarship Fund, S.BS.EES

Jackson Knight – Donald & Francisca Kluckman Scholarship Endowment in Agriculture, S.BS.NRL

Jennalee Larson – Gottlieb Scholl, Sr. and Gottlieb Scholl, Jr. Scholarship in Agriculture and Biological Sciences, S.BS.EES

Riley Mounsdon – Jim and Penny Woster Agriculture Scholarship Endowment in Support of the Jackrabbit Guarantee, S.BS.EES

Jacob Paulsen – Harold W. Lackey Scholarship in Agriculture, S.BS.EES

Tanner Pietz – Wells Fargo Scholars Program in Agriculture and Biological Sciences, S.BS.WLF

Brexton Roth – Gottlieb Scholl, Sr. and Gottlieb Scholl, Jr. Scholarship in Agriculture and Biological Sciences

Nicholas Sadler – Burdick G. Haugen Memorial Scholarship, S.BS.WLF

Joseph Salvati – Elias K. & Rose Rezek Scholarship in Agriculture and Biological Sciences, S.BS.NRL

Jenna Schauer – Ag PhD Scholarship, S.BS.EES

Jenna Schauer – Clarence and Betty Stockland Scholarship in Agriculture, S.BS.EES

Andrew Schwier – William and Byrne Griffith Scholarship Fund, S.BS.NRL

Anna Sells – Colonel Martin L & Irene T. Taylor Memorial Scholarship in Agriculture and Biological Sciences, S.BS.WLF

Sierra Stendahl – William and Byrne Griffith Scholarship Fund, S.BS.EES

Carsen Streich – Ag PhD Scholarship, S.BS.EES

Rylan Webster – Blanche Tompkins Enderson and Donald C. Henderson Scholarship in Agriculture and Biological Sciences, S.BS.NRL

Rylan Webster – Leon Lilley Memorial Scholarship in Agriculture, S.BS.NRL

Rylan Webster – Ross D. Davies Memorial Scholarship Fund, S.BS.NRL

Kyle Woodall – Ag PhD Scholarship, S.BS.NRL

Kyle Woodall – Ray F. Lund Memorial Scholarship, S.BS.NRL

Brand New NRM Support Building



Duane Olson joins us as a Groundskeeper

We are pleased to share that we have hired a new groundskeeper, Duane Olson, this past fall. Duane's family are multigenerational residents on property in Hendricks, MN, where he and his wife Teresa also raise quarter horses. Duane is a multi-skilled individual and we are very lucky to have him join our team to oversee the care of both Oak Lake Field Station and the NRM Wildlife research unit.



Rob Lonsinger interviewed by National Geographic Society

Rob Lonsinger was previously recognized as a National Geographic Explorer and he is a member of the National Geographic Explorer Advisory Panel. In this capacity, The National Geographic Society invited him to conduct an interview about his research. In particular, the interview will be used to develop a short biography film about him, his research, and how he uses math to study wildlife. The interview will accompany a print biography within an Algebra 2 textbook. Within the print biography sidebar, there will be a QR code and link to the short film biography. The goal of the biography (both print and video) is to inspire K-16 students and demonstrate how math is used every day in the STEM fields. Stay tuned for the release of materials developed for this project!



NRM One Day for STATE

Thank you very much for your contributions to our department in making One Day for STATE a success! On September 12, 2019, we raised \$1,160 in support of the NRM department. It wouldn't have been possible without you!



Josh Leffler's Lab in Summer 2019

Leffler's Lab supported two undergraduate researchers in Arctic caribou ecology. Ms. Cailee Peterson traveled to northern Alaska and spent the summer at Toolik Lake Research Station under a grant from the National Science Foundation; Ms. Pam Fehr traveled to northern Finland with support from Arctic Interactions, a Finnish program to stimulate collaborative research, along with an additional award from Natural Resource Management. Both students also received scholarships from the College of Agriculture, Food, and Environmental Sciences for research proposals they wrote.

Pamela Fehr in Finland

Pamela studied the impact of caribou grazing on carbon flux in two different understory communities in the boreal forest of Northern Finland. In this semi-domesticated caribou system, large numbers of animals can significantly impact vegetation abundance in the understory. Pamela used a long-term caribou enclosure, paired with an area currently browsed by caribou, and an automatic carbon flux system to measure net carbon uptake. She demonstrated that caribou can decrease the amount of carbon taken up by the ecosystem, but only in areas dominated by shrubs. She presented her research to the department and plans to present at the annual meeting of the South Dakota chapter of the Wildlife Society in the spring.

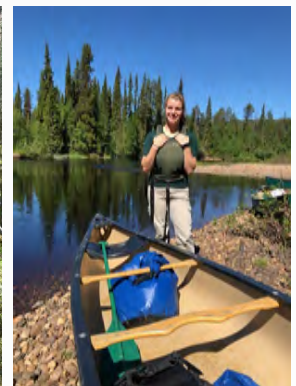
Cailee Peterson in Alaska

Cailee's research examined the abundance and nutritional value of *Pedicularis* spp., a small Arctic forb that is highly desired by caribou, but is patchy on the landscape and difficult to count. Cailee established that *Pedicularis* is most abundant in the central North

Slope of Alaska and is a quality food source early in the summer. Differences in timing of green up between southern and northern locations, however, suggests why caribou may desire this forage – its highly nutritional in northern locations where it begins to grow at the same time as caribou are giving birth and beginning lactation, an energetically intensive period in their lifecycle. She recently presented her research at the annual meeting of the American Geophysical Union in San Francisco.



Collecting data on the abundance of *Pedicularis* plants in the Alaskan tundra



Measuring soil respiration in a Finnish pine forest (left); Canoeing on the border between Finland & Russia (right)

USGS SD Cooperative Unit

Annual Coordinating Committee Meeting was held on Wed, November 20 at Larson Nature Park.

Committee Members: Mike Tome (USGS), Tony Leif (SD GFP), John Killefer (SDSU), Greg Watson (FWS), and Bill Moritz (WMI)
 Attendees: Steve Chipps, Larry Gigliotti, Joshua Stafford, Jiyoung Kim, Kate Tvedt, Cindy Anchor, Megan Figura, Will Gallman, Chuck Mordhorst, Trent Rohrer, Michele Dudash, Bruce Eichhorst, Rob Lonsinger, Mike Brown, Jon Jenks, Rocco Murano (SD GFP), Bruce Toay (Ducks Unlimited), and Laura Edwards (NC CASC)

Some of our NRM/Coop graduate students (Will Gallman, Chuck Mordhorst, and Trent Rohrer) presented their ongoing projects at the meeting.



Will Gallman, "Evaluation of cover crops for grassland nesting waterfowl and upland game birds in Eastern South Dakota"

USGS New Projects & New Students

"Transition of conventional crop fields to a regenerative model: Evaluation of functional biodiversity and insect ecosystem services"

- ◆ Funding: General Mills and Ecdysis Foundation
- ◆ Researcher: Alexandra Michels, MS Candidate
- ◆ Faculty: Steven Chipps (USGS)
- ◆ Principal Investigator: Jonathan Lundgren, Blue Dasher Farm and the Ecdysis Foundation
- ◆ Expected Completion: May 2021



"Post-stocking survival of Rainbow Trout in Black Hills impoundments"

- Goals: To evaluate factors affecting mortality of stocked Rainbow Trout in Black Hills lakes and make recommendations that enhance Game, Fish & Parks put-and-take stocking program.
- ◆ Funding: SD GFP
 - ◆ Researcher: Charles Mordhorst, MS candidate
 - ◆ Faculty/Principal Investigators: Steven Chipps (USGS), Jake Davis (GFP), Mike Barnes (GFP), Jeremy Kientz (GFP)
 - ◆ Expected Completion: June 2021



"Breeding Ecology of Overwater nesting ducks in Southwestern Manitoba"

- Goals: To provide managers with information to make informed decisions regarding potential management practices that maximize Canvasback nest survival.
- ◆ Funding: Delta Waterfowl Foundation
 - ◆ Researcher: Trent Rohrer, MS candidate
 - ◆ Faculty: Joshua Stafford (USGS)
 - ◆ Expected Completion: August 2021



ASPIRE: South Dakota State Joins National Alliance Aimed at Developing a More Inclusive and Diverse STEM Faculty

South Dakota State University is one of 20 universities joining a three-year institutional change effort to develop inclusive faculty recruitment, hiring and retention practices. The Association of Public and Land-grant Universities co-leads the effort, known as **Aspire: The National Alliance for Inclusive & Diverse STEM Faculty**. The new cohort joins an inaugural set of 15 institutions that began working together to advance such work earlier this year. The National Science Foundation funds the effort as part of its INCLUDES initiative.

Aimed at ensuring all STEM faculty use inclusive teaching practices and that institutions increase the diversity of their STEM professoriate, participating universities begin their work with a self-assessment of current practices and assets. The institutions will then develop and implement campus action plans to drive change and scale such efforts across all their STEM programs.

The Aspire Alliance, which **APLU*** and the Center for the Integration of Research, Teaching and Learning based at the University of Wisconsin-Madison facilitate with the involvement of several universities, is engaging the new cohort of 20 universities through its Institutional Change (IChange) Network. The network provides universities with comprehensive support and resources for institutional change, including access to national partners in a concierge-style approach to technical assistance.

Leading SDSU's IChange team will be **Michele Dudash**, who heads the Department of Natural Resource Management,

and **Hande Briddick**, an Associate Professor in the College of Education and Human Sciences. Also on the team are: Dennis Hedge, Provost and Vice President for Academic Affairs; Charlene Wolf-Hall, Dean, College of Natural Sciences; Bruce Berdanier, Dean, Jerome J. Lohr College of Engineering; Kas Williams, Chief Diversity Officer; Shana Harming, Director, Wokini and Tribal Relations; Erica Moore, Director, American Indian Student Center; David Clay, Distinguished Professor and President of Faculty Senate; Marc Serrett, Assistant Vice President, Human Resources; Jana Hanson, Director, Institutional Research and Assessment; Rebecca Kuehl, Associate Professor and Coordinator of the Women's and Gender Studies Program; Nicole Lounsbery, Interim Dean, Graduate School; Jon Stauff, Assistant Vice President, International Affairs; and Kevin Sackreiter, Director, Center for the Enhancement of Teaching and Learning.

Other public research universities in the new cohort are: Auburn Univ; Ball State Univ; Central Michigan Univ; Florida International Univ; Iowa State Univ; North Dakota State Univ; the Univ of Tennessee, Knoxville; the Univ of Texas at Austin; Univ of Arkansas; Univ of California, Davis; Univ of Cincinnati; Univ of Florida; Univ of Georgia; Univ of Missouri; the Univ of Nebraska-Lincoln; Univ of North Carolina at Charlotte; Univ of North Texas; Univ of South Florida; and Western Michigan Univ.

***APLU** is a research, policy and advocacy organization dedicated to strengthening and advancing the work of public universities in the U.S., Canada and Mexico. With a membership of 241 public research universities, land-grant institutions, state university systems and affiliated organizations.

Resource: <https://www.sdstate.edu/news/2019/10/south-dakota-state-joins-national-alliance-aimed-developing-more-inclusive-and-diverse>

Lora Perkins' Biological Invasions class took a field trip to Camelot Intermediate School in November.

The college students made "Wanted Posters" for invasive species as outreach tools to share information about identification and impact of invasive species.

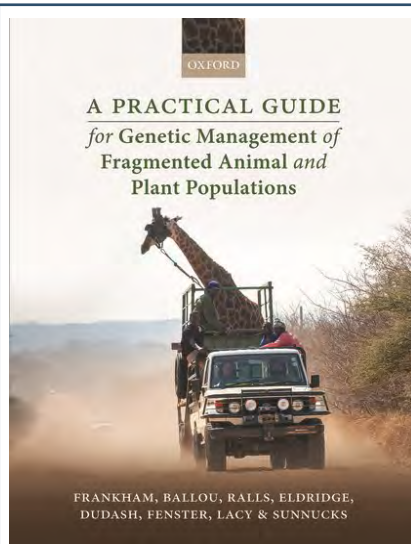
4th grade teacher, Sarah Stoltenberg, was generous to let us set up in her classroom for the day. The 4th graders and the college students both had an exciting and educational time.



NRM Faculty Books & Publications

Here are some of our Faculty members' new books, and publications. Details can be found in Open Prairie.

(<https://openprairie.sdstate.edu/nrm/>)



A Practical Guide for Genetic Management of Fragmented Animal and Plant Populations

Richard Frankham, Jonathan D. Ballou, Katherine Ralls, Mark D. B. Eldridge, Michele R. Dudash, Charles B. Fenster, Robert C. Lacy, and Paul Sunnucks
Oxford University Press,
1st Edition published in 2019

The habitats of most species have been fragmented by human actions, isolating small populations that consequently develop genetic problems. Millions of small, isolated, fragmented populations are likely suffering from inbreeding depression and loss of genetic diversity, greatly increasing their risk of extinction. (More info: <https://global.oup.com/booksites/content/9780198783411/>)

Influence of Season, Sex, Age and Diet Composition on Mercury Concentration in *Walleye Sander vitreus*

Trevor M. Selch, Steve R. Chipps, Brian G. Blackwell, and Robert P. Hanten

Archives of Environmental Contamination and Toxicology
77:336-343

Publication Date: 10-2019

Volume: 77, Issue: 3

<https://link.springer.com/article/10.1007/s00244-019-00658-1>

Looking to the Future: Key Points for Sustainable Management

Lora B. Perkins, Marissa Ahlering, and Diane L. Larson

Publication Date: 2019

Publication Title: **Restoration Ecology**

Volume: 27, Issue: 6

The grasslands of the northern Great Plains (NGP) region of North America are considered endangered ecosystems and priority conservation areas yet have great ecological and economic importance. Grasslands in the NGP are no longer self-regulating adaptive systems.

https://openprairie.sdstate.edu/nrm_pubs/297/

Badlands, Seed Banks, and Community Disassembly

Lora B. Perkins, Kelsey R. Ducheneaux, Gary Hatfield, and Scott R. Abdella

Publication Date: 9-2019

Publication Title: **Rangeland Ecology and Management**

Volume: 7, Issue: 5

Soil seed banks are a key component of ecological resilience as they provide a temporal reserve for plant species richness and diversity. Soil seed banks depend on on-site reproduction, seed longevity, and seed immigration for maintenance. When immigration of seeds is lost due to a change in land use or a disturbance, such as fragmentation, seed banks rely on on-site reproduction and longevity for maintenance. Within a fragment without seed immigration, seed banks become vulnerable to extinction debt leading to community disassembly over a long time scale.

https://openprairie.sdstate.edu/nrm_pubs/299/

Forum: Critical Decision Dates for Drought Management in Central and Northern Great Plains Rangeland

Alexander J. Smart, Keith Harmoney, J. Derek Scasta, Mitchell B. Stephenson, Jerry D. Volesky, Lance T. Vermeire, Jeffrey C. Mosley, Kevin Sedivec, Miranda Meehan, Tonya Haigh, Justin D. Derner, and Mitchel P. McClaran

Publication Date: 11-2019

Publication Title: **Rangeland Ecology and Management**

Ranchers and other land managers of central and northern Great Plains rangelands face recurrent droughts that negatively influence economic returns and environmental resources for ranching enterprises. Accurately estimating annual forage production and initiating drought decision-making actions proactively early in the growing season are both critical to minimize financial losses and degradation to rangeland soil and plant resources.

https://openprairie.sdstate.edu/nrm_pubs/298/

Tree Cover in the Surrounding Landscape Reduces Burrowing Owl (*Athene cunicularia*) Occupancy of Black-Tailed Prairie Dog Colonies in South Dakota

Jason P. Thiele, Kristel K. Bakker, Charles D. Dieter

Publication Date: 12-2019

Publication Title: **The Journal of Raptor Research**

Volume: 53, Issue: 1

https://openprairie.sdstate.edu/nrm_pubs/293/

Alumni News

Abby Schauer: New FSNHS Ranger

Abby is from Spencer, Iowa and was hired August 2019.

Family vacations inspired Schauer to pursue a career with the National Park Service.

“Every year, my family would go on vacation to national parks across the country, mainly Rocky Mountain National Park,” she said. “These vacations were something that I looked forward to every year and countless memories were made during these trips.”



Hiking trails, completing Junior Ranger books, attending ranger programs, camping in a little pop-up camper, looking for wildlife every evening, or skipping rocks on a pristine mountain lake, these are the memories that inspired her.

“I enjoyed every single moment in these amazing places,” she said. “So, when deciding what I wanted to do for a career, I chose to pursue a path with the NPS so I could help to preserve and protect these places that have so much meaning and to help people experience their parks and make memories just like I had the chance of doing.”

She is passionate about National Parks and feels honored to take part in protecting them so that both this and future generations can learn, enjoy, and be inspired by them, she said. (More info: <http://fortscott.biz/news/abby-schauer-new-fsnhs-ranger#respond>)

Recent Graduate Students’ Job Appointments

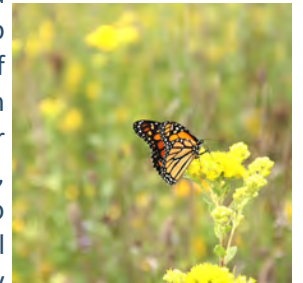
- **Rebecca Kolstrom (MS):** The Great Basin Institute, Sacramento, CA – Inventory & Monitoring Planning/Data Support Specialist
- **Jessica Richert (MS):** University of Alaska Anchorage, Ecosystem-Biomedical Health Laboratory Research Technician
- **Brandon Vanderbush (MS):** GFP, Chamberlain, SD — Resource Biologist, Southern 1/2 of Region 2 (Missouri River & Surrounding Water Bodies)
- **Lucas Silverberg (MS):** Pheasants Forever, Sleepy Eye, MN—Minnesota Farm Bill Wildlife Biologist

Monarchs in the Rough

Alumnus Marcus Gray manages the pollinator conservation program. Monarchs in the Rough is a partnership between Audubon International and Environmental Defense Fund.



Monarchs in the Rough provides regionally-appropriate milkweed seed to golf courses – enough to establish about one acre of high-quality monarch habitat when planted with a native pollinator seed mix. It also offers signage, posters, and technical guidance to golf course managers as they install and manage habitat, and as they communicate with course members about their effort to save the monarch.



By joining Monarchs in the Rough, golf courses can do their part to prevent further monarch losses while gaining recognition as an environmental leader and connecting with their communities in new ways.

Marcus has had the opportunity to be a guest on the Conservation Unfiltered podcasts: Listen to Episode 21 & 24 at <https://www.conservewild.org/podcast>.

First NRM Advisory Board Meeting

In August, NRM Department had a meeting with advisory board members at the Oak Lake Field Station. Members include:

- ◆ Tom Melius: Retired FWS; SDSU alumnus 1973 and 1975
- ◆ Tony Leif: GFP; 1985 SDSU alumnus
- ◆ Meredith Cornett: The Nature Conservancy, MN / Director of Science
- ◆ Jeff Zimprich: USDA NRCS / SD State Conservationist
- ◆ Jack Isaacs: US Forest Service / Chadron, NE; 1991 SDSU alumnus
- ◆ Jim Faulstich: SD Grassland Coalition; Distinguished Alumnus
- ◆ Bob Streecher: Retired USFWS; SDSU alumnus
- ◆ Chris Hesla: South Dakota Wildlife Federation in Pierre
- ◆ Carmen Thomson: National Park Services
- ◆ Kelly Hepler: SD GFP
- ◆ Matt Morlock: SD Pheasants Forever; SDSU Alumnus



NRM Faculty Google Scholar Profiles

Dr. Michael (Mike) L. Brown (michael.brown@sdstate.edu)	https://scholar.google.com/citations?hl=en&user=BII9nVkAAAAJ	Dr. Robert Lonsinger (robert.lonsinger@sdstate.edu)
Aquatic Animal Health and Nutrition; Fish Ecology; Fisheries Management https://scholar.google.com/citations?user=A3s4thAAAAJ	Dr. Jonathan A. Jenks (jonathan.jenks@sdstate.edu)	Wildlife Ecologist and Conservation Genetics https://scholar.google.com/citations?hl=en&user=xzpLgY8AAAAJ
Dr. Steven R. Chipps (steven.chipps@sdstate.edu)	Wildlife Ecology & Management; Population Dynamics; Wildlife Nutrition; Large Mammal Ecology https://scholar.google.com/citations?user=2FZNCSYAAAAJ&hl=en	Dr. Lora Perkins (lora.perkins@sdstate.edu)
Aquatic Food Web Ecology; Fish Bioenergetics; Foraging Ecology; Contaminants https://scholar.google.com/citations?user=ZV9NKSwAAAAJ&hl=en	Dr. Kent C. Jensen (kent.jensen@sdstate.edu)	Plant Ecology; Biological Invasions; Plant-Soil Interactions; Restoration Ecology https://scholar.google.com/citations?hl=en&user=w8gEwekAAAAJ
Dr. Michele R. Dudash (michele.dudash@sdstate.edu)	Avian Ecology and Management; Waterfowl Ecology and Management; Ornithology; Upland Gamebird Ecology and Management	Dr. Onja Razafindratsima (Onja.Razafindratsima@sdstate.edu)
Evolutionary Ecologist: plant-pollinator interactions, evolution of plant mating systems, conservation genetics https://scholar.google.com/citations?hl=en&user=K2oAEkAAAAJ	Dr. Maribeth Latvis (maribeth.latvis@sdstate.edu)	Landscape Ecology, Conservation Biology, Tropical Ecology, Primatology, Seed Dispersal https://scholar.google.com/citations?hl=en&user=UZvLdBoAAAAJ&view_op=list_works&authuser=1
Dr. Krista Ehlert (krista.ehlert@sdstate.edu)	Assistant Professor and Director of the C. A. Taylor Herbarium	Dr. Alexander "Sandy" Smart (alexander.smart@sdstate.edu)
Rangeland Ecologist and Management https://scholar.google.com/citations?user=ESC_GGEAAAAJ&hl=en	Plant Systematics; Plant Conservation Biology; Phylogenetics; Plant Community/Biome Assembly https://scholar.google.com/citations?hl=en&user=g09pvUAAAAJ	Rangeland Ecology and Management: Grazing, Fire, Range Improvements; Ecosystem Goods and Service https://scholar.google.com/citations?hl=en&user=gN13d2kAAAAJ
Dr. Charles Fenster (Charles.fenster@sdstate.edu)	Dr. A. Joshua Leffler (alan.leffler@sdstate.edu)	Dr. Joshua D. Stafford (joshua.stafford@sdstate.edu)
NRM Affiliate Professor/OLFS Director	Plant Physiological Ecology; Ecosystem Ecology; Plant and Ecosystem Response to Climate Change https://scholar.google.com/citations?hl=en&user=Si6XNjkAAAAJ	Ecology and Management of Waterfowl and Wetlands; Foraging Ecology; Statistics https://scholar.google.com/citations?hl=en&user=Si6XNjkAAAAJ
Evolutionary Biology, Evolutionary and Conservation Genetics, Floral Evolution, Pollinators and Sustainable Agriculture https://scholar.google.co.in/citations?hl=en&user=YmpyLbEAAAAJ	Dr. Stella (Hung-Ling) Liu (stella.liu@sdstate.edu)	Dr. Lan Xu (lan.xu@sdstate.edu)
Dr. Larry M. Gigliotti (larry.gigliotti@sdstate.edu)	NRM Affiliate Assistant Professor	Plant Ecology; Rangeland Reclamation, Restoration and Improvement; Vegetation Succession; Plant Responses to Stressors; Plant Reproductive Strategy; Soil seed and bud bank https://scholar.google.com/citations?user=l_gaRiYAAAAJ&hl=en
Human Dimensions; Survey Methodology; Human-Wildlife Conflicts; Public Involvement; Planning	Survey and evaluation research techniques focus on behaviors in outdoor recreation; human dimension of NRM; and impacts of recreation and tourism for individuals and community	

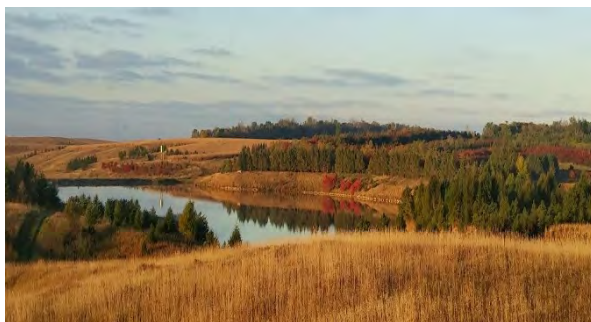


Photo by Alex Rosburg



Photo by Nels Troelstrup



YES! I wish to contribute to the SDSU Department of Natural Resource Management.

Online gifts can be made through: www.sdstatefoundation.org

My/our gift will be paid in the following manner:

Check (please make payable to the SDSU Foundation)
 Credit Card
 Visa MasterCard Discover AmEx
 Card Number: _____
 Expiration Date: __ / __
 Signature: _____

Please accept my/our tax-deductible gift in the amount of:

\$50 \$100 \$500 \$1,000 or Other \$ _____

Name(s): _____

Address: _____

City, State, Zip: _____

E-mail: _____

Phone: _____

Mail the completed form to:
 SDSU Foundation
 Lohr Building
 815 Medary Avenue, Box 525
 Brookings, SD 57007

Please return this form or contact our Foundation partner, Mark Sandager
 (Mark.Sandager@sdsufoundation.org, 605-215-2006)
 to learn more about how you can make a difference in the Department of NRM.

Thanks for any help!

Opportunities to support the NRM Department

Your impact: Funds that enable strategic initiatives in academic and research programs through implementation of the NRM department’s strategic plan including:

Endowed Professorships in our major research areas. Our initial foci will be in Fisheries and Wetlands.

Clifford H. Fiscus Endowment helps support our NRM Departmental seminar series. Clifford H. Fiscus (B.S. 1950) was a long-time friend of the department. In 2004, he provided an endowment to the department to bring guest speakers to campus. This is an important aspect of our graduate student training and pursuit of scholarly excellence.

NRM Education Fund. This fund enables talented undergraduate students to present their research at local and national meetings.

Undergraduate Program Targeted Scholarships. Gifts can be targeted toward undergraduate scholarship funds in
 (1) Conservation Planning and Park Management,
 (2) Ecology and Environmental Science,
 (3) Natural Resource Law Enforcement,
 (4) Rangeland Ecology and Management,
 (5) Wildlife and Fisheries Sciences.

Expanding competitive graduate student research awards.

If you are interested in donating at the \$1000 level or above, we can work with you to develop a named scholarship. A list of our current named scholarships can be found at: <https://www.sdstate.edu/nrm/academics/scholarships/upload/Undergrad-Scholarships.pdf>

• **Dave Willis Fisheries Research Award Endowment**

This Endowment was established to honor Dr. Willis' life work and to sustain his legacy through promoting excellence in fisheries education and research. We encourage and appreciate your support of Dave's legacy through a donation to support the growth of this endowment. Gift pledges can be made over multiple years or as single donations. Proceeds will be used to provide competitive research awards to graduate and undergraduate fisheries students who have demonstrated scholarly excellence in fisheries science and best personify Dave's exceptional career and service to our nation's natural resources.

• **Kenneth F. Higgins Waterfowl Legacy Research Endowment**

This Endowment honors the life and the distinguished career of Dr. Ken Higgins, a former wildlife research biologist with the U.S. Department of the Interior and the South Dakota Cooperative Fish and Wildlife Research Unit, and a professor emeritus in the Department of Wildlife and Fisheries Sciences at South Dakota State University.

• **Clifford H. Fiscus Waterfowl Research Endowment**

The Fiscus Waterfowl Research Endowment fund honors the life of Mr. Fiscus, who earned a degree in Wildlife Management at South Dakota State College. This endowment provides support for waterfowl research activities which may enhance future management or welfare of waterfowl or other wetland dependent avian species and/or their habitats.

• **Dr. Robert A. Klumb Memorial Endowment**

This Endowment honors the memory of Dr. Robert "Rob" Klumb (1967-2013) by his family. Rob was Project Leader for US Fish & Wildlife Service and Adjunct Associate Professor at South Dakota State University. This Scholarship is award annually.

• **Kevin Honness Memorial Scholarship Announcement**

The Honness Scholarship is awarded each year to student members of the Great Plains Natural Science Society. Two awards (\$500 each) are currently available, one for graduate and one for undergraduate researchers; preference will be given to students conducting research in the Great Plains. Applications will be accepted each year from 1 November until 28 February. Interested students can find additional details and an application form at <http://www.sdstate.edu/nrm/organizations/gpnss/kevin-honness-memorial-scholarship.cfm>.

• **Curtis M. Twedt Upland Game Research Endowment**

Curtis M. Twedt, a native of Volga, SD, graduated in Wildlife and Fisheries Sciences in 1959. Dr. Twedt enjoyed a 31-year career with the Nebraska Game and Parks Commission as an upland game and research biologist. The recipient of the Twedt research grant shall be selected by the Department of Natural Resource Management at SDSU. The long-term vision of the Department is to eventually be able to provide a graduate research assistantship from this endowment.

• **Jesse W. West Research Endowment**

This Endowment is intimately tied to the Pond Boss magazine and forum. It honors the life of Jesse W. West, a Mississippian and professor of geology. While teaching geology "summer camp" in the west, including Colorado, California, and the Black Hills (one of his favorite geologic places), he developed a love of the area and its people which he shared with his family. His strong belief in helping others along their journey in applied science is the cornerstone of Jesse's endowment.

Off Campus Research Facilities - Oak Lake Field Station or Wildlife and Fisheries Research Unit (existing resources to which you could contribute are identified below).

Your impact: Expanding endowed undergraduate research opportunities grants for our Oak Lake Field Station and Wildlife and Fisheries Research Unit; Funding to support construction of off-campus teaching and research facilities and/or purchase large research equipment.

Charles and Marcia McMullen Undergrad Research Award.

An Endowment recently established in honor of Dr. Charles and Marcia McMullen who have been long-time supporters of the Oak Lake Field Station. Chuck served as the first director of the Oak Lake Field Station and was instrumental in working with President Robert Wagner to establish the field station as a resource to students interested in the natural sciences. This endowment provides support for NRM undergraduate students interested in conducting undergraduate research at the station.

Oak Lake John Haertel Memorial Research Award

An Endowment established in honor of Dr. Jon Haertel, vertebrate biologist in Biology & Microbiology. Jon's love of vertebrate animals and long-time contributions to the study of vertebrates resulted in establishment of this endowment to support undergraduate research on vertebrates at the Oak Lake Field Station.

Rogen-Trooien Oak Lake Endowment

An Endowment established in honor of Alvera Rogen and the Trooien Family who had a long-time family connection and interest in the Oak Lake Field Station. This fund was established to support long-term maintenance and development of facilities at the Oak Lake Field Station toward the education and development of students interested in South Dakota natural resources.

Oak Lake Field Station Fund

A flexible field station account developed using unrestricted gifts to the Oak Lake Field Station and utilized for newsletters, web site, hospitality expenses and meeting attendance in relation to field station operations and programs.

Endowed Research Faculty positions in Ecology or Environmental Science, Range Ecology or Range Management, Wildlife Biology and Fisheries Biology.

Your impact: Faculty endowments provide funding for perpetuity that will allow the Department to recruit exceptional faculty members and provide them with the resources that are essential to their ability to do their critical work.

(Targeted gifts would also be appreciated to support the purchase of research equipment and enhancement of research lab facilities in each of the areas identified above.)

PLEASE contact us with Alumni Updates. We get more positive feedback from people who appreciate these updates than anything else in the newsletter!

Also, **please** send email address updates, corrections, and share the newsletter with friends and alumni so we can grow that email address list.

CONTACT US with news, comments or questions!