



**Center for  
Grassland  
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Photo: S. Richter-Ryerson

Grassland Systems | PGA Golf Management | Beef Systems Initiative

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**Prescribed Burn Associations** by Brian Teeter, Prescribed Fire Coordinating Wildlife Biologist, Pheasants Forever, Inc. and Quail Forever / Nebraska Game & Parks Commission, Linwood, NE

If you travel across Nebraska and the great plains on any given day during the spring you may have noticed an ever increasing amount of smoke plumes popping up on landscape over the past decade or more. While we have seen our share of wildfires over the years, a vast majority of these are the result of prescribed burns. These carefully planned and managed fires are vital to restoring and maintaining our grasslands, wetlands, and woodland ecosystems and in return they help us maintain our natural and agricultural heritage dependent upon them. You may love the sights and sounds of our state bird, the meadowlark, but did you know that grassland birds declined nearly 60% over the years with a major cause due to woody plant encroachment from eastern redcedar trees that are easily controlled by fire? Or, did you know that these trees also threaten our livestock industry by taking away valuable grazing lands?



**Prescribed burn association (PBA) members torching and wet lining for a prescribed burn.**

But just who are these people starting these fires? While you may be familiar with state or federal agencies and even local fire departments burning we also have a new type of group evolving on the landscape to help with returning fire to the landscape, they are called prescribed burn associations. The concept is nothing all that new, they are generally small groups of area landowners that band together and share time and equipment resources in order to apply fire safely to the landscape. Since most prescribed fires are not generally something most landowners can just go out a do themselves with immediate family members or hired hands, they often have to recruit other likeminded individuals with the same goals to accomplish (**Continued on Page 5**)

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Note: Opinions expressed in this newsletter are those of the authors and do not necessarily represent the policy of the Center for Grassland Studies, the Institute of Agriculture and Natural Resources, or the University of Nebraska – Lincoln.

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## Director's Column by Walt Schacht, Interim Director, Center for Grassland Studies

It's spring and exotic, cool-season grasses have initiated growth in our warm-season grasslands. To many of us that means it's time to ignite prescribed fires to control the invasion of the cool-season grasses into our native prairies, restored grasslands, and warm-season grass pastures.

In this newsletter, **Brian Teeter** provides an excellent overview of the goals of prescribed fires and how burn associations are important in achieving these goals across Nebraska.

The Center for Grassland Studies is responsible for managing two tallgrass prairies, Nine-Mile Prairie and Dalbey Prairie, in south eastern Nebraska and prescribed fire is a principal tool used to manage these prairies. And loosely structured organizations, like the burn associations described by Brian, assist us in conducting

the prescribed fires. **Dr. Dave Wedin**, grassland ecologist with the School of Natural Resources and director of the two tallgrass prairies, engages with neighbors and personnel of government agencies in planning and conducting prescribed fires on a periodic basis.

Dave worked with a team of grassland fire specialists from the Nebraska Game and Parks Commission and UNL in conducting a prescribed fire on 90 acres of the Dalbey Prairie on April 14, 2021. Dalbey Prairie is a 135-acre property south of Virginia, Nebraska. The purposes of the fire were to control exotic, cool-season grasses, and woody plants (e.g., eastern redcedar), to remove the accumulation of dead plant material, and to encourage growth of the native plants in the prairie. **(Continued on Page 3)**



**Sam Cowan, Nebraska Game and Parks Commission, works a prescribed burn at Dalbey Prairie. Photo by D. Wedin**



**Dalbey Prairie after a prescribed burn. Photo by D. Wedin**

# Looking for a Career in Conservation – How to Apply in USAJOBS for NRCS Positions

by Mary Reece, Area Resource Conservationist, USDA NRCS—Twin Platte NRD, North Platte, NE

The United State Department of Agriculture’s Natural Resource Conservation Service (NRCS) is hiring motivated individuals who want a career in natural resources. NRCS hires a variety of resource technical and management support positions. Our staff of Conservationists work hand-in-hand with producers, landowners, and partners to implement voluntary conservation practices that work for agricultural operations and the environment.

Currently NRCS is direct hiring 1,500 positions nationwide to ensure we have the staff to carry out the NRCS conservation mission and implement the Farm Bill Conservation Programs. Hiring occurs on USAJOBS or <https://www.usajobs.gov/>, which is the official job site of the Federal Government where an individual can search and apply for jobs with NRCS. The steps below identify the process to apply and search for a position that meets career goals.

- Step 1:** Create a login.gov account to sign into USAJOBS and create a profile.
- Step 2:** Create a USAJOBS profile that includes your name, address, and other important information needed to apply for a position and helps with searching.
- Step 3:** You can build a resume on the USAJOBS site using the Resume Builder tool or you can upload a resume already developed. The site allows you to upload up to five resumes to target different types of positions. When applying for a federal job, it’s important to clearly describe how your skills and work experiences align to the selection criteria defined by the job announcement.
- Step 4:** USAJOBS has a search tool that allows a user to search for possible jobs by key word, occupation, agency, location, and salary. You can set up automated job searches based on your criteria. USAJOBS will email you (daily, weekly or monthly) when there are new jobs entered into the database that meet your needs.
- Step 5:** Review the job announcement opportunity. Pay close attention to the time the job is open, who may apply, and qualifications including education and experience. The How to Apply section includes specific directions, required documents, and contact information for the announcement.
- Step 6:** Applying for the job announcement. Update your resume and ensure it lists all relevant skills and experience. Upload the resume and other required documents that are listed in the announcement. Submit your application. You can periodically check your job status in the application section of USAJOBS.

## Director’s Message (Continued from Page 2)

The fire was a complete, even burn that should achieve the goals. The Center is working with neighbors, Southeast Community College-Beatrice, and local and state agencies in developing research and education programs for the Dalbey Prairie. It is a highly diverse prairie within a landscape of mixed grasslands and croplands. Dalbey Prairie provides UNL and its partners with the opportunity to develop collaborative adaptive management programs focusing on the ecology and management of grasslands within an working agricultural landscape. The prescribed fire was the first indication of this developing collaborative program.

# Monitoring Sandhills Rangelands: A Key Step in Understanding Plant Community Dynamics

by Mitch Stephenson, Range & Forage Management Specialist and Kayla Mollett, Research Project Coordinator, Panhandle Research & Extension Center, Scottsbluff, NE

The Sandhills Rangeland Monitoring Cooperative (SRMC) is a collaborative project between UNL Extension, NRCS, and cattle producers to conduct and evaluate rangeland monitoring data on ranches with diverse management strategies in the Nebraska Sandhills.

Monitoring locations in 2020 were spread from the low NRCS precipitation zone classification (14-17 inches of yearly precipitation) in the western Sandhills to ranches in the central region, which includes UNL's Gudmundsen Sandhills Laboratory (GSL), in the medium precipitation zone (17-22 inches of yearly precipitation). At each ranch, three or four pastures were selected to represent the typical management on the ranch. Within each pasture three study sites were established on upland Sands ecological sites. At each monitoring site, photo points were taken and a step point method with placement of a monitoring frame was employed to measure ground cover, frequency of occurrence, and dry weight rank, or the estimation of different plant species' contribution to total biomass production. Soil health data were also collected at each site. The following are results from GSL's 2020 vegetation monitoring.

Percent ground cover averaged across the three GSL study pastures showed that litter made up approximately 75% of the ground cover. Litter is beneficial to pasture health by acting as a protective mulch for native plants and wind and water erosion control. Bare ground averaged 13% of the cover and live vegetation, or rooted plant bases, made up an average of 12% of the ground cover.

Percent frequency, or likelihood of encountering a plant species in the monitoring frame, was averaged across three GSL study pastures. The most frequent plant species were little bluestem (76% of monitoring frame placements), sedges (69%), stiff sunflower (63%), Scribner's rosette grass (55%) and prairie sandreed (51%).

Dry weight rank estimates the most productive species based on their contribution to the total biomass. The approximate percent of the total biomass for individual species is highlighted in Figure 1. Little bluestem contributed approximately 41% of the total biomass. Stiff sunflower (10%), needle grasses (8%), and switchgrass (8%) were the next largest contributors to the total plant biomass (Figure 1). **(Continued on Page 5)**

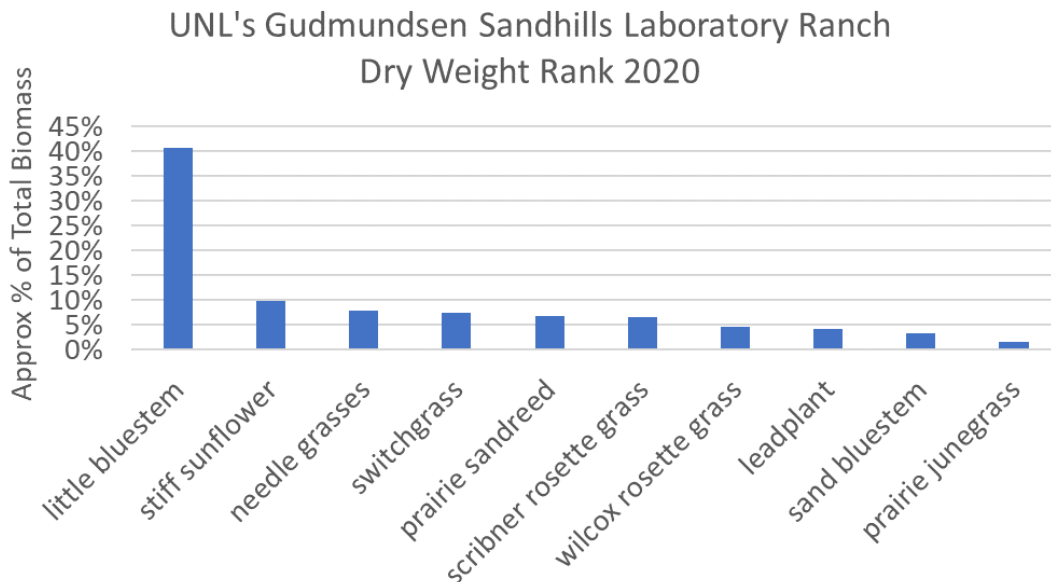


Figure 1. Approximate percentage of total biomass calculated by dry-weight-rank at GSL in 2020 averaged across three pastures.

## Monitoring Sandhills Rangelands (Continued from Page 4)

Overall results from SRMC ranches showed variability in plant community and ground cover across the different monitoring sites as well as differences by Sandhills region (Figure 2.). All SRMC data is combined by region and presented on our webpage (<https://spark.adobe.com/page/EkDaaEdOVwCXG/>). Monitoring will be repeated, and more ranches added in 2021. Future analysis will link ranch management data with plant community and soil health.



**Figure 2.** Photo points of two central sandhills SRMC monitoring transects. Left: 9% bare ground calculated along this transect. Right: 42% bare ground calculated along this transect.

## Prescribed Burn Associations (Continued from Page 1)

the burning. In some cases, these are very loosely organized groups of just neighbors helping neighbors others may have a more formal structure and organized with their own set of bylaws and elected board members to coordinate and schedule burns. While every prescribed burn association operates a little differently the common theme is that friends and neighbors show up to help to accomplish a goal that otherwise might not happen. When these associations are working well there is great community support for these prescribed burns that have a lasting legacy in an area that ends up creating a culture in which fire is not only accepted but celebrated for its benefits to the individual as well as the community and environment.

Realizing the benefits of using fire to manage grassland may inspire you to start your own prescribed burn association or to join an existing association in your area. The future of our cherished Great Plains ecosystem is in the hands of these great stewards of our lands and fire needs to be a part of that stewardship. For more information on prescribed fire and prescribed burn associations you can contact any private lands wildlife biologists within Pheasants Forever and we can get you in contact with a local PBA or help you start one. Visit [NebraskaPF.com](http://NebraskaPF.com) for more information.



**A sunset prescribed burn. Photo B. Teeter.**

# Development of Novel Plant Fluorescence Based Techniques for Remote Assessment of Grasslands and Pastures Health and Resilience

by Anastasios Mazis, Ph.D. Candidate, School of Natural Resources, University of Nebraska-Lincoln

Grasslands cover 37% of Earth's terrestrial area and provide food, fodder, and animal rearing for millions of people. These ecosystems also contribute to climate change mitigation by removing carbon from the atmosphere, acting as a carbon sink. However, many grasslands are showing signs of degradation from overgrazing and the resulting problems of woody encroachment, invasive weeds, and soil erosion. Due to the significant ecosystem services provided by grasslands and the threats they are facing, grazing land management and pasture improvement should be a top research priority in order to preserve these ecosystem services and the human livelihoods they sustain.

The increasing availability of unmanned aerial vehicles (UAV) and remote sensing techniques offers opportunities for precise and frequent characterization of grassland ecosystems in a non-invasive and time-efficient way in order to contribute to the problem. Aerial imagery can be tested against traditional handheld techniques to derive physiological (e.g., photosynthesis, fluorescence) and morphological (e.g., biomass, leaf area index) traits and develop measures (vegetation indices) that are representative of the condition of the grassland. This will ultimately allow researchers to study any given ecosystem just by using aerial (and satellite) imagery, with no need for ground measurements.

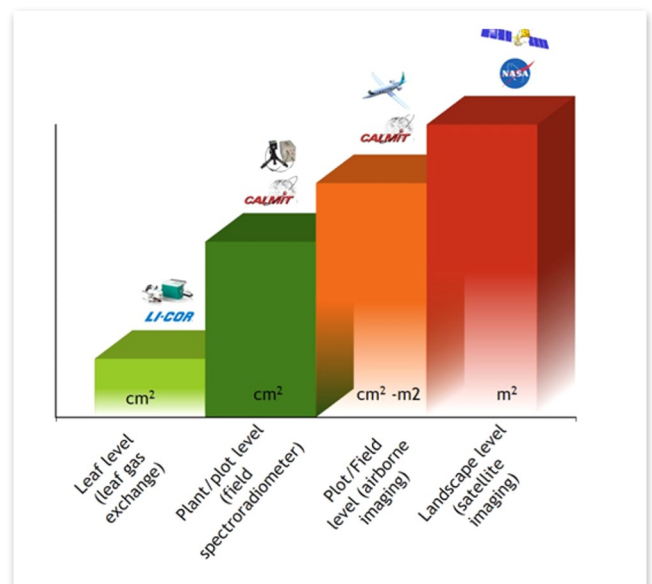
For our project, we tested 3 fertilization treatments (no fertilization, supplemented fertilization, and high fertilization), 2 grazing treatments (grazed and ungrazed) and 2 grazing patterns (rotational and continuous) in brome-dominated pastures for 3 summers. The combination of the factors allowed us to study the growth pattern of the pasture vegetation under a variety of stressors and assess the effect of these stressors on the health and productivity of the grass species. We also used aerial (airplane and satellite) imagery to identify the physiological traits that can be transferred across scales.

In our preliminary results, we found that rotational grazing had a positive effect on the vegetation when compared to continuous grazing. As for the difference between the grazed and non-grazed vegetation, although the non-grazed showed better results on morphological traits (biomass), the rotational-grazed vegetation had a positive effect on the productivity and forage quality of the vegetation. Last, we tested established vegetation indices for their accuracy on pasture vegetation under the tested conditions, concluding that NDVI was among the best tested indices in identifying and quantifying important physiological and morphological traits.

*This project was funded by the Arthur W. Sampson Fellowship Fund, University of Nebraska-Lincoln, and the McIntire-Stennis Fund.*



**The LTAR field with brome-dominated vegetation on continuous grazing**



**The different scales from measurements taking place on the field to satellite imagery that allows us to remotely derive physiological data of the vegetation.**

## UNL PGA Golf Management Alumni Among Nebraska Section Award Winners

by Brad Goetsch, PGA, Assistant Professor of Practice, PGA Golf Management Program

On March 29, the Nebraska PGA honored nine individuals and one facility for outstanding achievements in a variety of areas of the golf industry during the 2020 season. Two of the nine come from the ranks of the PGA Golf Management Program here in the Center for Grassland Studies.

**Seth Scollard** won the Patriot Award for his work with PGA HOPE. PGA HOPE is an outreach program developed by the PGA focused on bringing the joys of the game of golf to veterans who have put their lives on the line for our country. Seth's dedication to PGA Hope on a state-wide level has, without a doubt, impacted the lives of these veterans in countless positive ways.

In a note to the Special Awards Selection

Committee, Seth said: "Growing up, I was raised to always give respect to our nation's veterans as they have sacrificed their lives for our freedom we get to enjoy every single day. We should never take that for granted. PGA HOPE has given me the opportunity to give back to our local heroes in a unique way."

**Gil Russell** won the highest honor awarded by the section, the Golf Professional of the Year. Gil stated in his note to the committee: "The work that I do every day is not to win awards, nor is it to be recognized for the service I put in but more of my passion to serve others." After graduating from the PGA Golf Management Program at Nebraska in 2011, Gil worked at ArborLinks in Nebraska City. In 2017, Gil took an opportunity to become the General Manager of Norfolk Country Club where he led an extensive renovation project, rebuilding the clubhouse and pool areas of the club. In 2019 Gil made another move. This time to Happy Hollow Club in Omaha as an Assistant General Manager where he's already helped to lead that club to an award for Facility of the Year. Gil is currently finishing up his term as President of the Nebraska Section PGA. He was first elected to an officer role in 2015, making him the youngest to enter the officer ranks in the history of the Nebraska Section.

The PGA Golf Management Program is extremely proud to have both of these tremendous individuals among the ranks of our alumni!

## Nebraska's Grassland Legacy

by Walt Schacht, Interim Director, Center for Grassland Studies

The Center for Grassland Studies announces the release of Nebraska's Grassland Legacy, a video that celebrates grasslands. Produced by **Ethan Freese** and **Mariah Lundgren** of the Platte Basin Timelapse project, the video tells the story of Nebraska grasslands with a brief review of the environmental and human factors driving current grassland systems.

The video may be used for multiple purposes. Educators at all levels may utilize the four-minute video to communicate the importance of grasslands and conservation issues associated with grasslands. Grassland enthusiasts may simply want to share it with others as an overview of grasslands. The Center will utilize the video to promote its programs and for recruiting students to the Center's Grassland Systems degree program with its options in Grazing Livestock Systems and Grassland Ecology and Management.

Look for a longer video concentrating on tallgrass prairie and the Nine-Mile Prairie to be released later this year. Nebraska's Grassland Legacy may be viewed at <https://grassland.unl.edu/nebraska-s-grassland-legacy>.



Pictured L to R: David Honnes, Gil Russell, Dallas Brekeen, and Seth Scollard.



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**YOUNES CONFERENCE CENTER, KEARNEY, NE / AUGUST 9<sup>TH</sup> - 11<sup>TH</sup>**

- **Ed & Leta Olson**, *2020 Leopold Conservation Award Recipients*
  - **John Walker**, *Texas A&M AgriLife Research & Extension Center*
  - **Jim Jenkins**, *Jenkins Management LLC*
  - **Sean Kelly**, *Mid-Missouri River Prescribed Burn Association Liaison*
  - **Brad Krohn**, *U.S. Fish & Wildlife Service, Rainwater Wetland Management District*
  - **Melissa Panella**, *Nebraska Game & Parks*
  - **Chris Redman**, *McGinley Ranch*
  - **Tim Goodnight**, *McMurtrey Ranch*
- ...and many more!

**PRE-CONFERENCE TOUR**

August 9<sup>th</sup> (afternoon)

**ZOOM PRODUCER PANEL**

August 9<sup>th</sup> (evening)

**MORE INFORMATION: [GRASSLAND.UNL.EDU/NEBRASKA-GRAZING-CONFERENCE](http://GRASSLAND.UNL.EDU/NEBRASKA-GRAZING-CONFERENCE)**