



## **Society for Range Management & Natural Legacy Conference** October 7-9, 2025

### **Abstracts**

**Tuesday, October 7th**

**Session: Landowner Stories, Values, and Perspectives**

#### ***Understanding the Values That Inform Regenerative Ranching in the Northern US Great Plains***

Timothy Pape<sup>1</sup>, Gwendwr Meredith<sup>1\*</sup>, David Sandahl<sup>1</sup>, Faizul M. Kabir<sup>1</sup>, Simanti Banerjee<sup>1</sup>, Craig Allen<sup>1</sup>, Elliott Dennis<sup>1</sup>, Mitchell Stephenson<sup>1</sup>

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Regenerative ranching practices are gaining attention as a means to balance agricultural productivity, ecosystem health, and climate resilience. However, widespread adoption of these practices hinges not only on economic and ecological considerations but also on the values and priorities of ranchers themselves. This study explores the values that shape decision-making and inform the implementation of regenerative practices among ranchers in the Northern U.S. Great Plains. Using semi-structured interviews and qualitative analysis, this research identifies key themes such as stewardship ethics, intergenerational legacy, community ties, and perceptions of environmental responsibility. Findings suggest that while economic viability remains a significant driver, intrinsic values tied to land stewardship and ecosystem health often underpin ranchers' willingness to adopt innovative practices. These insights provide a nuanced understanding of the human dimensions of regenerative ranching and highlight the importance of aligning policy, outreach, and education with the values that matter most to ranchers. By centering values-based approaches, this research contributes to strategies for fostering sustainable transitions in agricultural systems.

#### ***Learning to Care for Land: A Landowner/Artist's Perspective***

*Pat James, Nebraska Master Naturalist*

After living in urban areas all my life, I started to manage 600 acres of hilly grasslands that my two brothers and I inherited in Boyd County, Nebraska in 2003. My brothers and I all lived out-of-state, but I decided to move to our property along the Missouri River. Up to that point, most of my life had been surrounded by concrete, manicured lawns, buildings, and small green parks. Like many people, I didn't know much about plants or land, and I seldom noticed my natural environment. I spent my adult years working in the arts, and although

I'd visited our ranch many times, I knew very little about the grasslands, cedars, or noxious weeds. No one in my family had ever lived full-time on this property before I retired from teaching art at the University of Minnesota-Twin Cities. I had a lot to learn—and still do!

When I first started taking care of our property, I learned the “If it’s not grass, kill it!” approach to weed management from local farmers. Since then, I’ve found multiple resources, including books, websites, and trial and error, that have informed me about practical aspects of land management. By becoming a Nebraska Master Naturalist, I’ve learned about biodiversity and the interdependency of nature. I’ve also gained practical and “big picture” advice from individuals at the National Resource Conservation Service and Nebraska Game and Parks and by attending conferences and workshops sponsored by NGP, the Nature Conservancy, and the Prairie Optimists.

In addition to the above resources, I’ve turned to the arts to learn to care for the land. Viewing and making is a way for people to experience and think about nature through emotions, metaphors, and imagination, and to develop deep, personal connections with the natural world. In this presentation, I show examples of diverse artists that have expressed beliefs and emotions about nature through their work. I also show examples of my own artistic work, especially from my book, *Wildflower Portraits: Plants along the Missouri National Recreational River*, in which I made individual photographic “portraits” of 200 different forbs, vines, and shrubs on our property.

Over the years, I’ve practiced scientific and practical aspects of land management through cedar cutting, controlled burns, and noxious weed control, but it is art that has helped me fall in love with land and make decisions about it. By combining scientific, practical, and artistic ways of knowing, I’ve learned to take care of the land, but I’ve also learned to care for—to value—it.

### ***Ranching, Consumer Direct Beef, And Eco-Tourism***

Aaron Shropshire, Magill Farms

Owning and operating a farm or ranch is the dream of many people. Unfortunately, farming and ranching are becoming increasingly difficult for anyone to become vested in. Equipment costs, access to land, and the economics of cash flowing an operation are all barriers that are not easy to overcome. Inheriting a cash flowing operation is not an option for everyone but there are still ways to build an operation even in the current ag-economic environment. Beef cattle provide potential for beginners to start an enterprise with potentially lower start-up costs than row crop farming enterprises. Ranching inherently offers potential for operators to utilize their product and range ground for secondary value-added enterprises. The two main ways Magill Farms has attempted to capitalize on secondary enterprises are through value added consumer direct beef and eco-tourism. Non-Farm income is probably a necessity for most operators starting out but sweat equity, education, stewardship, collaboration, and ingenuity are non-monetary assets that will add value to any operation.

Sharing lived experiences on these topics will provide encouragement and direction for overcoming common obstacles for beginners and experienced operators alike.

### ***International Year of Rangelands and Pastoralists: An Opportunity to Increase Grassland Awareness***

Bob Broweleit, Seven Pines Ranch

Nebraska's grasslands play a vital role in the state's economy, ecology, and cultural identity, yet they remain undervalued and often unknown to urban and younger audiences. The United Nations designated 2026 as the International Year of Rangelands and Pastoralists. As part of this global awareness campaign, a collaborative committee from Nebraska is focused on grassland advocacy in two areas. First, bridging the urban-rural divide by targeting urban populations to educate them on grasslands role in climate resilience, biodiversity, and food production. Second, fostering stewardship and curiosity among Nebraska's youth through tailored educational resources, storytelling, and interactive learning opportunities. By addressing these gaps, the committee will elevate grasslands visibility and encourage informed, sustainable land management practices.

### **Session: Advancing Mammal Conservation**

#### ***Evaluating Wildlife Crossing Feasibility for Rocky Mountain Bighorn Sheep in Nebraska: A Data-Driven Conservation Approach***

*Dillion Dittmer<sup>1\*</sup>, Jill Kuhel<sup>2</sup>, Jarrod Walker<sup>2</sup>, Todd Nordeen<sup>3</sup>, Logan Weyand<sup>3</sup>, Emily Schmit<sup>1</sup>, Nate Jones<sup>1</sup>, Mark Traxler<sup>1</sup>*

<sup>1</sup> HDR

<sup>2</sup> Nebraska Department of Transportation (NDOT)

<sup>3</sup> Nebraska Game and Parks Commission (NGPC)

The Rocky Mountain Bighorn Sheep (*Ovis canadensis canadensis*), a Tier 1 at-risk species in Nebraska, faces increasing threats from habitat fragmentation and vehicle collisions, particularly along the Nebraska Highway 71 (N-71) corridor in the Panhandle region. In response, the Nebraska Department of Transportation and Nebraska Game and Parks Commission, with funding from the Federal Highway Administration's Wildlife Crossing Pilot Program, have initiated a collaborative feasibility study to assess the potential for wildlife crossing infrastructure to support species conservation and motorist safety. The study area lies within the Wildcat Hills Biologically Unique Landscape, a rugged and ecologically significant region that supports one of the state's few, and largest, remaining bighorn sheep populations, as well as other species of interest (mountain lion, elk, mule deer, occasional moose, and many other game and non-game species).!

This presentation will summarize the current phase of the study, which focuses on data collection and wildlife movement modeling. Preliminary findings from GPS telemetry, habitat suitability assessments, and landscape connectivity modeling will be shared to illustrate movement patterns and identify potential conflict zones with transportation infrastructure. These data resources and evaluation are foundational to evaluating future mitigation opportunities.

No mitigation recommendations will be presented at this stage. Future consideration of wildlife crossing infrastructure will be supported by a comprehensive cost-benefit analysis to ensure that proposed solutions are not only ecologically effective and economically justified, but also aligned with agency priorities. The feasibility study is both science-based and data-driven, integrating rigorous ecological analysis with empirical movement data to inform decision-making.

The study incorporates input from a diverse group of stakeholders, including transportation planners, wildlife biologists, land managers, and conservation partners. This collaborative approach ensures that ecological, operational, and community perspectives are considered throughout the feasibility assessment process.

Next steps will include finalizing the initial wildlife movement evaluation and developing recommendations for mitigation strategies. This study represents a science-based approach to conservation planning and contributes to the goals of the Nebraska Natural Legacy Project by supporting informed decision-making for one of the state's most vulnerable large mammals and one of Nebraska's most unique landscapes.

### ***Beyond the Chirps: Evaluating Autoid and Manual Review Bat Acoustic Evaluation***

Robert H Hibbitts, Felsburg Holt & Ullevig

Bats play a vital role in Nebraska's ecosystems, providing essential services such as insect control and pollination. Acoustic monitoring offers a powerful, non-invasive method for surveying bat populations and assessing species-specific activity patterns and presence. Opening datasets from acoustic detectors often feels like uncovering a treasure chest revealing surprising and informative results that form the foundation for analysis. Interpreting acoustic data is as complex as bat echolocation itself. Species-specific call parameters such as frequency, duration, inter-pulse interval, and call shape may overlap, and these characteristics could vary depending on environmental conditions, forest clutter, behavior context, and regional distribution. As a result, distinguishing among species like *Lasiurus borealis*, *Perimyotis subflavus*, and various *Myotis* species requires skilled analysis of the data. While automated classification software may expedite species identification up front, manual review of auto-classified calls remains essential to minimize misidentification and ensure data quality. The analysis underscores both the strengths and limitations of the AutoID acoustic classification tools and highlights the importance of manual validation by experts when high accuracy is required.

### ***NABat Nebraska 2025 Update***

Derek Krueger, Nebraska Game and Parks Commission

Long term monitoring of Nebraska's bat populations has continued throughout the 2025 field season. Collecting population data on bats remains a necessity, as various threats continue to cause decline in populations across the US. In order to effectively monitor the state's remaining bat population, NABat's monitoring program was once again utilized. Following NABat guidelines, a series of acoustic surveys were conducted at 39 sites scattered across the state. Data collected from these acoustic surveys provide valuable insights on the current populations and how they may have changed over time.

## **Wednesday, October 8<sup>th</sup>**

### **Session: Fire and Grazing Management**

#### ***Timing of Prescribed Fire. Or, Why Do We Do This to Ourselves***

Kent Pfeiffer, Northern Prairies Land Trust

Prescribed fire in Nebraska and other Midwestern states has traditionally been viewed as a spring, late-March through April, activity. A "good" day for prescribed fire is typically viewed as a warm (~70 degrees F), sunny, light winds (under 15 or even 10 mph) and low humidity (under 40%). I will talk about why these parameters do not, in fact, constitute "good" conditions for conducting a prescribed fire and how burning at other times of the year under very different weather parameters can be both safer and more effective.

#### ***Prescribed Fire as a Primary Driver of Cattle Distribution in the Nebraska Sandhills***

Hannah K. Allen<sup>1\*</sup>, Mitchell B. Stephenson<sup>2</sup>, Daniel R. Uden<sup>1,3</sup>

<sup>1</sup> Department of Agronomy and Horticulture, University of Nebraska–Lincoln

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Cattle grazing distribution is influenced by a variety of environmental and structural factors, including proximity to water, fencing, and topography. Prescribed fire also shapes grazing preferences by altering forage quality and availability. Patch-burn grazing systems aim to reestablish the historical interaction between fire and large ungulate grazing by applying fire to alternating pasture patches in a rotational manner. This approach increases structural heterogeneity by creating a mosaic of vegetation heights, often with neutral to positive effects on cattle production. The objective of this study was to evaluate cattle movement and distribution in a patch-burn grazing system, with a focus on how prescribed fire compares to other drivers of grazing behavior in the Nebraska Sandhills. Cattle were fitted with GPS collars that recorded locations at 10-minute intervals. Step selection

functions (SSF) were used to analyze cattle movement. SSF models cattle movement at a continuous time scale and incorporates both step length and turning angle to predict cattle selection. Predictor variables included topographic position indices, distance to water, distance to fence, distance to gates, patch in which fire was prescribed, and days since fire. Prescribed fire emerged as the dominant factor influencing cattle distribution, surpassing typically influential variables such as topography, water availability, fencing, and gates. Furthermore, cattle preference for burned areas decreased as time since fire increased. These findings highlight the strength of the fires “grazer interaction and support the use of prescribed fire as a strategic management tool to influence grazing patterns in the Nebraska Sandhills.

### ***Patch Mow Grazing: Investigating the Effects of Mowing on Forage Nutritive Value, the Biomass Nutritive Value Relationship, and Herbivore Habitat Selection***

Trace Stauble <sup>1\*</sup>, Nicholas McMillan <sup>1</sup>, Mitchell B. Stephenson <sup>2</sup>, Daniel R. Uden <sup>1,3</sup>

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Herbivores are key drivers of grassland heterogeneity, capable of altering both vegetation quantity and quality through grazing. Therefore, understanding what drives herbivore selection is critical for the future conservation and management of grasslands. Currently, herbivore selection is thought to be driven in large part by nutritive value, with animals disproportionately selecting for recently defoliated landscape patches that are greater in nutritive value and lower in biomass compared to those with greater biomass and longer time since defoliation. However, most studies only address narrow ranges of defoliation, comparing intensely defoliated sites (<10 cm) to those that are not defoliated or have a much longer time since defoliation in landscapes managed with fire and grazing, largely overlooking other methods of defoliation, such as mowing. Our objectives of this study were to examine how patch-mow grazing affects forage nutritive value and herbivore selection. Specifically, we investigated: (1) the relationship between mowing height and nutritive value, (2) the relationship between biomass and nutritive value in a mown landscape, (3) how various mowing intensities influence herbivore selection, (4) and how biomass influences herbivore selection. We found that crude protein (Lmer:  $\text{df}=11$ ,  $F=10.9$ ,  $p<0.01$ ) and total digestible nutrients (Lmer:  $\text{df}=11$ ,  $F=23.4$ ,  $p<0.01$ ) were significantly greater in short-mown patches (5 cm) compared to other patch heights (18 cm to 30+ cm), while biomass was inversely related to crude protein (Lmer:  $\text{df}=11$ ,  $p<0.01$   $R^2=0.45$ ) and total digestible nutrients (Lmer:  $\text{df}=11$ ,  $p<0.01$   $R^2=0.40$ ) regardless of treatment. Additionally, we found that our steers disproportionally selected for our short patches as they were selected for 28- 46% more than our medium and tall patches (ANOVA: 2, 46) = 14.41,  $p<0.001$ ). We also found that selection and biomass had a negative relationship ( $\hat{\beta}^2 = -0.00043 \pm 0.00005$ ,  $p<0.001$ ), with selection for short biomass being 2.5 times higher than

selection for tall biomass. Our results suggest that mowing increases nutritive value, and herbivore selection, with our short patch being highest in nutritive value and being disproportionately selected for in comparison to our other treatments. Therefore, patch-mow grazing could be a viable alternative to patch-burn grazing in landscapes where fire is limited. Furthermore, our results suggest that mowing to a short offers herbivores area of high-quality vegetation, possibly increasing livestock production in comparison to areas with higher biomass. Therefore, patch-mow grazing has the potential to stabilize and possibly increase livestock production and could have the ability to promote grassland heterogeneity critical to sustaining livestock production and biodiversity across the Great Plains.

### ***Monitoring Sandhills Plant Diversity with Remote Sensing under Different Rangeland Management Approaches***

Catherine Chan<sup>1</sup>, John Gamon<sup>2</sup>, Daniel Uden<sup>2,3</sup>, Ran Wang<sup>2</sup>

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Monitoring grassland plant diversity is important for range management, yet challenging to do across large landscapes with different management approaches. Remote sensing offers opportunities to estimate plant diversity and heterogeneity across space and time, but reflectance signals capture vegetation, management, and environmental effects, complicating efforts to isolate diversity. It is important to understand how different management practices influence remotely sensed biodiversity assessments. In this study, we evaluate relationships between plant diversity and remotely sensed reflectance in a deferred rotational grazing and patch-burn grazing system at Barta Brothers Ranch in the Nebraska Sandhills.

We compare hyperspectral airborne imagery with field-collected vegetation data, topographic metrics (elevation, slope, aspect, curvature, solar radiation, and topographic wetness), dune position, and management variables, including cattle movement heat maps and satellite-derived prescribed fire indices. Multivariate techniques are used to evaluate:

1. How does management history influence the spectral biodiversity relationship?
2. How are these influences signaled in reflectance data across space and time?

Stratifying data by management factors (pasture, cattle movement, burn index) alters the strength of spectral-diversity relationships. Parsing by pasture and burn treatment improves predictive power, suggesting that management legacies shape how biodiversity is expressed spectrally. However, these relationships weaken later in the growing season and with time since management applications. By identifying the variables and wavelengths most associated with management influences, we highlight the importance of context when interpreting biodiversity estimates from remotely sensed imagery. This work underscores

the role of management in shaping spectral signals of diversity and offers insight into the ecological significance of remote sensing data in heterogeneous rangelands.

## Session: Collaborative Conservation

### ***Empowering Participation in Wetland Conservation: A Social-Structural Approach***

Katherine A. Graham<sup>12\*</sup>, Chris Chizinski<sup>2</sup>, Mark Vrtiska<sup>2</sup>

<sup>1</sup> Ducks Unlimited Inc.

<sup>2</sup> School of Natural Resources, University of Nebraska–Lincoln

Action across multiple sectors is necessary to slow wetland loss due to drainage and degradation. Within the community sector, broad involvement in wetland conservation behaviors (WCBs), such as volunteering personal time to make wetland improvements and contacting elected officials to advocate for wetland conservation, can have direct impacts on wetland resources and play a role in shifting structures, laws, practices, and policies related to wetland conservation. Promoting participation in WCBs has been a recent focus of multiple organizations since the 2012 revision of the North American Waterfowl Management Plan. However, relatively little is known about what facilitates such participation. In this study, I sought to narrow this knowledge gap by testing a social-structural model of participation in WCBs using information collected from a web survey of conservation organization members, outdoor recreationists, and the general public in Kansas, Nebraska, and South Dakota. Using structural equation modeling, I tested the hypothesis that those with strong and weak social network ties to wetland conservationists would be more concerned about wetland loss, have more outdoor experiences, and have a stronger conservationist identity, which translates into increased adoption of WCBs. Results indicate the model had close fit to the observed data based on a profile of fit indices (CFI=0.97, TLI=0.95, RMSEA=0.04, SRMR=0.03). I found that participation in WCBs is rare, though conservation organization members and outdoor recreationists are more likely to participate than the general public. Finally, social network connections to the wetland conservation community, which cultivate a conservationist identity, promote feelings of self-efficacy, and facilitate outdoor experiences, support increased involvement in WCBs. Consistent with my hypothesis and the social-structural tradition this work is built on, this research suggests that investment in building personal connections to the wetland conservation community will increase involvement in wetland conservation organizations and the adoption of WCBs.

### ***Collaborative Nature of a Partnership Position and its Benefits to Private Lands Conservation Work***

Katherine Crawley, Bird Conservancy of the Rockies



Collaborative conservation strengthens partnerships, provides outreach and opportunities to landowners across Nebraska Biologically Unique Landscapes (BULs). Working in a partnership-focused capacity enhances wildlife habitat. Partner Biologist positions are uniquely situated to connect landowner and other resource professionals with opportunities through the USDA Farm Bill and Nebraska Game and Parks Commission (NGPC) habitat funding. Bird Conservancy of the Rockies hosts a Coordinating Wildlife Biologist in northwest Nebraska, in partnership with the NGPC and the USDA Natural Resource Conservation Service (NRCS), bringing together opportunities for landowners and land managers for conservation on public and private lands. The result has led to a variety of woodland, grassland, and riparian projects in partnership with Pheasants Forever, NRCS, NGPC, Ducks Unlimited, US Fish and Wildlife Service, US Forest Service, Prairie Plains Research Institute, National Fish and Wildlife Foundation, and World Wildlife Fund with wildlife habitat at the forefront, often utilizing multiple funding sources allowing for more work to be accomplished within northwest BULs. Habitat work has included forest thinning for habitat and fuels reduction, fuel breaks for fire mitigation, invasive species management (eastern red cedar, Russian olive, cheatgrass), grassland enhancements through native plantings and non-native species control, installation of wildlife-friendly fence, native shrub plantings, and cropland conversions to native. Opportunities for partner biologists are immense when partnerships expand, future efforts in northwest Nebraska will focus on targeted resource concerns such as cheatgrass management, as partners begin to explore Regional Conservation Partnership Program funding opportunities.

### ***Sandhills Creek Renovation Story: West Birdwood Creek***

Tevyn Pieper and Ashley Garrelts, Sandhills Task Force

A critical restoration project is underway for a severely incised section of West Birdwood Creek in Lincoln County, Nebraska. Currently, this area is characterized by steep, sloughing banks and significant downcutting with a culvert serving as a checkpoint that has prevented the downcutting from progressing upstream, however, that structure is threatened. By elevating the water level, the project aims to restore acres of subirrigated meadow/wetlands and miles of the stream. These efforts will improve water quantity and quality, enhance habitats for fish, waterfowl, and wildlife, and bolster ecosystem functionality and resiliency, ensuring long-term environmental benefits through collaborative conservation strategies. Partnership between private landowners, non-profit organizations, and state and federal government agencies make this project possible.

This presentation will also provide a brief update on other Sandhills Task Force activities that include our Sandhills Ranch Internship Program, cedar clearing/burning, grazing systems, other wetland/stream projects, and our outreach/networking events.

### **Saline Wetland Conservation Partnership**

Tom Malmstrom<sup>1\*</sup>, Will Inselman<sup>2\*</sup>, Ted LaGrange<sup>3</sup>

<sup>1</sup> City of Lincoln

<sup>2</sup> Lower Platte South Natural Resources District (LPSNRD)

<sup>3</sup> Nebraska Game and Parks Commission (NGPC)

The presentation will provide a brief introduction to the Saline Wetland Conservation Partnership and focus on recent projects at Frank Shoemaker Marsh (habitat enhancement project for endangered species) and Marsh Wren (saline water distribution system).

### Session Bird Conservation:

#### ***Removal of Eastern Redcedar Benefits the Sandhills Grassland Bird Community***

Rachel Rusten<sup>1\*</sup>, Sarah Sonsthagen<sup>2</sup>

<sup>1</sup> University of Nebraska–Lincoln

<sup>2</sup> U.S. Geological Survey

One of the main threats to the Nebraskan Sandhills Ecoregion is the encroachment of woody species such as Eastern Redcedar. Our project seeks to evaluate the mechanical removal treatments' effect on the grassland bird community. We are conducting avian point counts for three breeding seasons (2024-2026) across pastures with varying landscape management. We report our 2024 preliminary results; detected grassland bird obligate (i.e. grasshopper sparrow) abundance is highest in areas of recent removal (<5years) and active management. We document decreases in pastures lacking active management (absence of fire, lopping, etc) and overall lower abundance detected in encroached areas. Preliminary results support positive response of grassland obligate species to treatments. Ultimately, we aim to further inform conservation actions by evaluating community response and timing to Eastern Redcedar management.

#### ***Prairie Grouse Distribution Models Inform Conservation Return-on-Investment Modelling for Woody Management in Nebraska***

Bryan O'Connor<sup>1\*</sup>, Kevin W. Barnes<sup>2</sup>, John Laux<sup>1</sup>

<sup>1</sup> Nebraska Game and Parks Commission

<sup>2</sup> U.S. Fish and Wildlife Service

To optimize conservation planning for prairie grouse, Nebraska wildlife agencies developed probabilistic area-based surveys for greater prairie-chicken (*T. cupido*) and sharp-tailed grouse (*T. phasianellus*), sampling landscapes across a range of environmental conditions. This survey design is more suitable for developing distribution models than historic surveys and enables quantitative habitat associations to be leveraged for scenario-based conservation planning. Using these data, we related occurrence and abundance observations (2020-2022) to landcover, topography, and climate data within generalized linear mixed effects models. We then conducted a cost-benefit analysis of woody cover treatments relative to the effects of woody encroachment on prairie grouse populations. These models demonstrate the importance of evidence-based, quantitative models for

prioritizing and guiding conservation actions on working lands to benefit prairie grouse populations in Nebraska.

***Leveraging Big Data for Grassland Bird Conservation: Grassland Outcomes Tool for Birds and the Central Grasslands Bird Working Group***

Anne Bartuszevige<sup>1</sup>, Chris Latimer<sup>2</sup>

<sup>1</sup> Playa Lakes Joint Venture

<sup>2</sup> Bird Conservancy of the Rockies

We will introduce two new planning tools for grassland bird conservation. First, GOT Birds, Grassland Outcomes Tool for Birds, is an online decision support tool that can estimate changes in abundance of grassland and select shrubland birds due to woody plant management. The estimates are spatially explicit and can be calculated at a landscape scale as well as the project scale. Results are presented in graphic and tabular form. We used boosted regression analysis to model spatially explicit bird density across portions of seven states in the southern central grasslands. In Nebraska, GOT Birds is available in western Nebraska in Bird Conservation Region 18. At the landscape-scale, we modeled current grassland bird density and four pre-selected future woody plant encroachment scenarios relevant to management. At the project-scale, we estimated changes in grassland bird abundance expected from management by analyzing the relationship between grassland bird density and woody plant cover. Second, the Central Grasslands Bird Working Group has developed full-annual-cycle dynamic abundance models, covering both breeding and nonbreeding seasons, that identify areas of high grassland bird density, evaluate conservation investment by quantifying landscape contributions to grassland bird populations, and guide recovery efforts by providing spatially-explicit estimates of population growth rates. We will provide a demonstration of both products and illustrate how the information can be used to inform conservation.

***Piping Plovers and Climate Change***

Elsa M. Forsberg<sup>1,2</sup>, Joel G. Jorgensen<sup>1</sup>, Mark P. Vrtiska<sup>3</sup>

<sup>1</sup> Nebraska Game and Parks Commission

<sup>2</sup> Crane Trust

<sup>3</sup> University of Nebraska–Lincoln

Many organisms, including certain threatened and endangered birds, are altering important life history events in response to climate change. The consequences of climate change pose additional conservation challenges to conventional threats (e.g., habitat loss, illegal harvest) which may be the source of initial declines. The Piping Plover is a migratory shorebird that is recognized as threatened or endangered throughout its range in the United States and Canada. We explored whether Piping Plovers are shifting migratory and breeding phenologies in response to weather and climate variables in the Great Plains region of the

United States, as well as determining whether relationships exist between nest success and those same variables using long-term monitoring and citizen science data sets. We found little to no evidence that Piping Plovers have shifted migration phenology and only weak associations between advancing nest initiation and drought severity. However, there was evidence that nest survival decreased slightly with higher maximum temperature and weak evidence that nest survival increased with less severe drought. Although our study did not find strong evidence of clear phenological shifts or acute survival consequences, our study provides a foundation for additional study. Furthermore, the Piping Plover breeding range includes different regions which may experience different effects from climate change and longer-term data sets may reveal clearer patterns.

### Session: Pollinator Habitat & Monitoring

#### ***Rangeland in Nebraska and Nearby States Can Support More Milkweeds and Monarch Butterflies***

Timothy L. Dickson<sup>1\*</sup>, Brittany Poyner<sup>1</sup>, John Brennan<sup>1</sup>, Grace Thomas<sup>2</sup>

<sup>1</sup> University of Nebraska at Omaha

<sup>2</sup> Kalahari Research Centre, South Africa

Monarch butterfly populations are decreasing, and most monarch conservation efforts have focused on planting milkweeds on land not used for food production. Few monarch conservation efforts have focused on the 1/3 of the continental U.S. grazed by livestock. We compared grazed and nearby ungrazed grasslands in Nebraska, Kansas, Missouri, and Iowa. We found that cattle and bison regularly graze most species of milkweeds without apparent harm, and we found that milkweeds are 5.4x more abundant in ungrazed grasslands compared to cattle-grazed grasslands and that monarch eggs are 6x more abundant in ungrazed grasslands than cattle-grazed grasslands. Although grazing reduced juvenile monarch abundance, a continuation of grazing is important for monarch conservation because rangeland that is not grazed in this study region is usually converted to row-crop agriculture or invaded by eastern redcedar and other trees. We take our study results as good news that rangeland could potentially support more milkweeds and monarchs, and we discuss potential changes in management that could increase the abundance of juvenile monarch butterflies.

#### ***Understanding Rangeland Wildflower Forage Value for Livestock***

Rae Powers<sup>1</sup>, Sarah Hamilton Buxton<sup>1,2</sup>, Jenny Hopwood<sup>1</sup>, Autumn Smart<sup>1</sup>, Mitch Stephenson<sup>3</sup>, Kevin Sedivec<sup>4</sup>, Kaylee Wheeler<sup>5</sup>

<sup>1</sup> Xerces Society

<sup>2</sup> Natural Resources Conservation Service (NRCS)

<sup>3</sup> University of Nebraska–Lincoln, Extension

<sup>4</sup> North Dakota State University, Extension

<sup>5</sup> South Dakota State University, Extension

Native rangelands are invaluable pollinator habitat, providing vast areas of connected habitat and a diversity of wildflowers. However, wildflowers are often perceived as undesirable by rangeland producers. Wildflowers may be viewed as competitors to grasses, particularly those species that appear after severe disturbances like flooding or drought, are not considered to be valuable forage to livestock, or are seen as noxious weeds or potentially toxic to their livestock. Ranchers spend time and money spraying to remove all forbs, unaware of their value to livestock and wildlife and how to recognize problematic species from others.

Livestock often feed on wildflowers but there is a gap in our current knowledge of forage quality of rangeland forbs. While the forage quality of native grasses has been analyzed extensively, very little information is available about the forage quality and mineral content of our native rangeland forbs.

To increase our understanding of how native rangeland forbs contribute to livestock diet and performance, the Xerces Society for Invertebrate Conservation, in collaboration with USDA's Natural Resources Conservation Service, South Dakota State University and North Dakota State University, collected much needed data on the nutrient and mineral content of common rangeland wildflowers palatable to cattle in the Northern and Central Great Plains. Over 2,000 samples of more than 75 wildflower species were collected across ten states. We have collected and analyzed 732 samples from 75 wildflower species across 10 states. Results from wildflower collections will be presented. Printed guides with profiles of 19 common species in the Northern Great Plains will be available.

***Description of Southern Plains Bumblebee (*Bombus fraternus*) Habitat within the Central Platte River Valley Based on Five Years of Monitoring Data***

*Emma Richards<sup>1\*</sup>, Abraham Kanz<sup>1</sup>, Bethany Ostrom<sup>1</sup>*

<sup>1</sup> Platte River Whooping Crane Maintenance Trust

The Southern Plains bumble bee (*Bombus fraternus*) is one of many bumble bee species experiencing declines in population size and range. Habitat loss and fragmentation are the primary drivers behind these declines, though other factors such as climate change, pesticide exposure, and disease may also play a role. As a result of these significant population declines and their ever diminishing habitat, the Southern Plains bumble bee was petitioned to be protected under the Endangered Species Act where it is currently under consideration for a protected status. Despite their drastic population decline, research focused on the habitat requirements of the Southern Plains bumble bee is limited. To address questions surrounding habitat requirements and potential management for the species, we have begun creation of a Southern Plains bumble bee habitat model for the Central Platte River Valley (CRPV) aimed at discerning key features of suitable habitat, the

relative importance of these features, and the impacts of pasture management on the species. Our preliminary findings show that day of year (with greatest occurrence in early August), land use history (selecting for remnant and rehabilitated habitat), and the wetland indicator score (average WIS when present:  $3.11 \pm 0.19$ ) had the greatest impact on the accuracy of our models for both Southern Plains bumble bee absence/presence and abundance. These results show that the Southern Plains bumble bee selects for transitional sites ( $3.0 < \text{WIS} < 3.2$ ), indicating that the conservation of this species could have implications for the management of both grassland and wetland habitat.

### ***From Monarchs to Many: Evaluating Habitat and Scaling Monitoring To Multiple Early Successional Species***

Mercy Manzanares, Monarch Joint Venture

Monarch butterflies (*Danaus plexippus*) have experienced population declines exceeding 80% over the past two decades, driven largely by the loss of breeding habitat, particularly milkweed and nectar plants. Effective conservation of monarchs and other pollinators requires comprehensive data on species distribution, abundance, habitat availability, and responses to management interventions. With nearly a decade of systematic data collection, the Monarch Joint Venture's Integrated Monarch Monitoring Program (IMMP) provides a nationwide, modular framework for assessing monarch populations and habitat quality. Standardized protocols—encompassing surveys of milkweed, nectar resources, eggs, larvae, adults, and parasitism—have generated a robust, multi-year dataset across diverse land types including grasslands, rights-of-way, agricultural lands, developed areas, and targeted conservation sites. These data enable both site-specific assessments and comparisons within a national database, supporting conservation planning, grant reporting, and rigorous evaluation of management effectiveness. IMMP data have informed over a dozen peer-reviewed publications and continue to advance scientific understanding of monarch and pollinator ecology. Building on this foundation, IMMP is expanding its scope beyond monarchs to include additional early successional taxa such as grassland birds, bumble bees, and other pollinators. This broadened approach will provide a more comprehensive understanding of habitat quality and conservation outcomes across multiple species, further enhancing the program's relevance to practitioners, policymakers, and researchers.

### **Session:**

#### ***The Kitchen Table: A Conservation Starter***

Ann Dvorak<sup>1</sup>, Laura Nelson<sup>2</sup>

<sup>1</sup> World Wildlife Fund

<sup>2</sup> Nebraska Grazing Lands Coalition

“Conservation and practices that work to balance the needs of people and nature are

underpinned by relationships. By investing in people and human capacities it creates greater spillover potential for new partnerships and points of exchange to gain wider contextual perspective,” (Berman, Bennett, Pittman, Unpacking the Human Dimensions of North America’s Central Grasslands, page 12).

A former educator, Ann Dvorak, and a former journalist, Laura Nelson, walk into a bar...oh wait, that is a different story. They walk into careers in conservation, a new horizon full of opportunity and challenges. One thing remained the same, though, the importance of the kitchen table and the relationships that have been built around them. They will share stories of creating connection and tie in the importance of social science to ecological science. They will also invite a panel of ecologists to share stories of successes and failures when it comes to building relationships in the conservation space.

### Session: Woody Encroachment & Invasive Species

#### ***Beneath the Boughs: What Does Eastern Redcedar (*Juniperus virginiana*) Encroachment Mean for the Future of Woodlands along the Niobrara?***

Lillie Hoffart<sup>1\*</sup>, Bailey McNichol<sup>1,2</sup>, Abigail Ridder<sup>3,4</sup>, Brittnei McGuire<sup>3</sup>, Sabrina E. Russo<sup>1,5</sup>

<sup>1</sup> School of Biological Sciences, University of Nebraska–Lincoln

<sup>2</sup> Department of Forestry, Michigan State University

<sup>3</sup> College of Agricultural Sciences and Natural Resources, University of Nebraska–Lincoln

<sup>4</sup> Department of Forest and Rangeland Stewardship, Colorado State University

<sup>5</sup> School of Biological Sciences and Center for Plant Science Innovation, University of Nebraska–Lincoln

Woody encroachment of eastern redcedar (*Juniperus virginiana*) has rapidly increased throughout the Great Plains in recent decades. While its impacts on grasslands are well documented, less is known about how this species alters woody ecosystems, even though it also is an aggressive encroacher into woodlands. To address this gap, we investigated how understory conditions, herbaceous vegetation, and tree recruitment and diversity vary along an redcedar dominance gradient in a 20.2-ha forest inventory plot in a managed woodland along the Niobrara River in Nebraska. Preliminary results indicate that increasing redcedar density reduced woody seedling (< 1 cm in diameter) recruitment as well as species richness and diversity of both woody and herbaceous plants in the understory. However, we found no differences in canopy cover nor light availability across the eastern redcedar density gradient. These results suggest that eastern redcedar encroachment suppresses tree recruitment through mechanisms other than shading. Moreover, redcedar encroachment is already reducing the structural and species diversity of the ecologically important woodlands of the Niobrara region, with a great potential for negatively impacting the wildlife that depend on these woodlands.

### ***Redcedar Stand Reclamation in the Eastern Nebraska Sandhills***

Jacob Harvey<sup>1\*</sup>, Daniel R. Uden<sup>1</sup>, Mitchell B. Stephenson<sup>1</sup>

<sup>1</sup> University of Nebraska–Lincoln

Eastern redcedar (*Juniperus virginiana* L.) plantings have occurred throughout the Nebraska Sandhills historically as part of cost-share conservation programs. Redcedar windbreaks provide much needed shelter during the winter for cattle herds and can act as a “living fence.” Over the years, these windbreaks have also contributed to the threat of woody plant encroachment by acting as seed sources for unwanted sapling recruitment in surrounding grasslands. Resources have traditionally been used to remove these saplings but not the windbreak seed sources. Removing adult trees is a costly endeavor with many landowners uncertain of the after-effects of such disturbance (e.g., causing a blowout, space for invasive plants). Research at UNL’s Barta Brothers Ranch addresses these questions. In October 2024, three 0.3-ha groves of mature eastern redcedar (>30 years old) were mulched to the ground by contractors. Fencing was constructed to exclude grazing and allow sites to rehabilitate. Vegetation surveys were conducted in July 2025 in 10m x 10m grids, with sampling frame drops occurring at every intersection. Cover by species was observed using classed estimates. In addition to the mulched groves, three 0.3-ha reference sites of upland Sandhills range were established within 100m of each grove to serve as paired plots with the identical sampling grid and protocol occurring. When comparing plant functional groups, richness was similar between mulched and reference sites with an average of 37 and 36 species encountered, respectively. Cover differed considerably. Graminoids represented an average 11.4% cover in the mulch plots compared to 66.7% in the reference plots. Mulch (unsurprisingly) made up an average of 52.8% ground cover within the mulch plots. Further surveys will take place to assess long-term impacts of this treatment on both control of redcedar saplings and reclamation of the site by the surrounding native plant communities.

### ***Updating Nebraska’s Terrestrial Invasive Plant Species List: Additions and Considerations***

Shannon Smith<sup>1\*</sup>, Josh Nelson<sup>2</sup>

<sup>1</sup> Nebraska Invasive Species Council

<sup>2</sup> Sarpy County Weed Control Authority

While there are rules, regulations, and categories for invasive aquatic species, the state of Nebraska does not possess a state-designated list of invasive terrestrial species. The Nebraska Invasive Species Council recently revised its own terrestrial invasive plant list to better reflect the needs and concerns of cooperating statewide entities, including the Nebraska Department of Agriculture, county weed control authorities, researchers, and private landowners, among others. The updated list includes 5 problematic native species and 84 non-native species, categorized as either a potential, priority, established, or noxious invasive. The Council also updated the reporting standards for each species based on whether the species is determined to be a high priority for early detection and rapid



response for the state and/or specific regions of the state. We will discuss some of the prominent changes to the list, including the addition of problematic natives, the prioritization of invasive annual grasses, criteria used to determine the list's species and categories, what our list means for the state, and the value of our list to all Nebraskans as a tool for not only recognizing terrestrial invasive plants, but reporting them effectively to the correct entity for prevention and control efforts.

### ***Cheatgrass Management Opportunities in Western Nebraska***

Mitch Stephenson<sup>1</sup>, Miranda Mueller<sup>1</sup>, Karley Dieckmann<sup>1</sup>

<sup>1</sup> University of Nebraska–Lincoln

Panhandle over the last several decades. Because of its early germination as a winter annual and prolific seed production, cheatgrass can often outcompete native perennial grasses. In areas with extensive invasion, cheatgrass reduces wildlife habitat quality, increases wildfire risk, and reduces forage availability and production for livestock grazing. Targeted grazing and relatively new herbicide options provide the most viable opportunities for management of annual grasses. Recent research has explored how the timing of targeted grazing can influence the efficacy of reducing seed production. cattle selection of cheatgrass during early season grazing was generally predictable based on plant height and date from seed set. targeted grazing reduced seed production by 38 to 77% depending on year and study location. Other research exploring herbicide mixtures of indaziflam and imazapic has shown promise in controlling cheatgrass and increasing perennial grass biomass and nutritive value later during the growing season over multiple years. Lastly, community involvement in addressing this challenge to grazinglands in Nebraska has increased in recent years and developing options for defending core areas will be discussed. Understanding the challenge annual invasive grasses pose to western Great Plains rangelands and weighing tradeoffs in management will be increasingly important to managing these rangelands in the future.

### ***Prairies Under Pressure: How Climate Stressors Are Opening the Door to Weedy Plant Expansion in Nebraska Grasslands***

Ben Beckman<sup>1\*</sup>, Ryan Benjamin<sup>1</sup>

<sup>1</sup> University of Nebraska–Lincoln Extension

As climate patterns shift, Nebraska's grasslands are experiencing increased stress from more variable precipitation, longer drought periods, and intensified temperature extremes. These environmental changes are not only straining native plant communities but also creating openings for invasive and weedy species to spread. This session will explore the relationship between climate-driven stressors and the expansion of invasive species, highlighting real-world examples of species shifts and their management implications across the state.

Rather than a traditional lecture, this interactive workshop will include breakout discussions that invite participants to share what they are observing on the ground, how their management approaches are adapting, and brainstorm future strategies. Whether it's changes in prescribed fire timing, grazing management, or chemical control approaches, the session will focus on practical solutions and peer-to-peer learning. Participants will leave with a clearer understanding of how climate change is reshaping the weed management landscape and fresh ideas for adapting their strategies.

### Session: Pollinator & Insect Monitoring (Continued)

#### ***Not Quite Nebraska: Using Necrophagous Beetles to Assess Ecosystem Function in Western Missouri Prairies***

Andrea Malek<sup>1\*</sup>, Daniel Marschalek<sup>2</sup>

<sup>1</sup> Nebraska Game and Parks Commission (NGPC)

<sup>2</sup> University of Central Missouri

Carrion is an important component in ecosystems as its decomposition contributes to nutrient cycling which influences ecosystem function and the structure of communities at different trophic levels. Decomposition of carrion can be used as an indicator of ecosystem health as it affects all trophic levels. In this study, I explored coleopteran decomposer communities to assess the structure and function of prairie ecosystems in western Missouri. The Missouri Department of Conservation (MDC) has identified areas of the state that are important for biodiversity and designated them as Conservation Opportunity Areas (COAs). Prairies located within COAs will be compared to prairies in the surrounding landscape to assess any differences in community structure and ecosystem function. Baited pitfall traps were placed at 16 different prairies across western Missouri. Over 18,000 beetles from 10 families were collected and identified. Preliminary results show few differences between COA and non-COA prairies.

#### ***Nebraska Bumble Bee Atlas***

Katie Lamke, Xerces Society

The Nebraska Bumble Bee Atlas is a statewide community science project that has been tracking and conserving native bumble bees since 2019. In this presentation, the author will provide an update on the project, share findings of at-risk or rare species, and introduce the next phase set to begin in 2026. The Atlas is a collaboration between Xerces and Nebraska Game and Parks Commission, with past support from University of Nebraska-Lincoln and Nebraska Environmental Trust.

### ***Monitoring Monarchs and Regal Fritillaries in Nebraska***

Stephanie Paris<sup>1\*</sup>, Brett Andersen<sup>1</sup>

<sup>1</sup> Nebraska Game and Parks Commission

Categorized as Tier 1 species of greatest conservation need in Nebraska, monarchs (*Danaus plexippus*) and regal fritillaries (*Argynnis idalia*) have been petitioned for listing as threatened species under the Endangered Species Act. Since 2020, the Nebraska Game and Parks Commission and community scientists have been monitoring the target species within the tallgrass prairie ecoregion. With over 1,500 surveys conducted and more than 1,000 target butterflies observed, declines have been seen since the start of the project. By estimating abundance, distribution, habitat preferences, and nectaring preferences, the data collected has helped support both Species Status Assessments.

### ***Nebraska's Big Butterfly Count***

Brianna Nugent<sup>1</sup>, Jo Langabee<sup>2</sup>

<sup>1</sup> Nebraska Game and Parks Commission

<sup>2</sup> Nebraska Master Naturalist

Nebraska's Big Butterfly Count is a community science project that is designed to collect statewide data to help the Nebraska Game and Parks Commission better understand butterfly diversity across the state. This project has been active for two years with focused efforts on Central and Eastern Nebraska. During this session we will provide a project overview, cover data highlights, and discuss successes/challenges.

Nebraska's Big Butterfly Count is in collaboration with Nebraska Game and Parks Commission, Nebraska Master Naturalist, and the Nebraska Natural Legacy Project.

## **Session: Conservation Outreach**

### ***Nebraska Fungi Project***

Chance Brueggemann<sup>123</sup>, Derek Zeller<sup>3</sup>, Gerry Steinauer<sup>13</sup>, John Kyndt<sup>4</sup>

<sup>1</sup> Nebraska Game and Parks Commission

<sup>2</sup> Northern Prairies Land Trust

<sup>3</sup> Nebraska Fungi Project

<sup>4</sup> Bellevue University

If you ask a typical Nebraskan what mushrooms they know, the answer is almost always a “morel” and usually not much beyond that. Yet Nebraska is home to thousands of fascinating fungal species that remain poorly documented. To address this issue, three years ago we launched the Nebraska Fungi Project to explore and record the state's fungal biodiversity. In this presentation, we will introduce the project's structure, origins, and objectives. We will outline our field collection methods including scouting, documentation, collection, and herbarium prep. We will also highlight how teaming up with Bellevue University for DNA analysis strengthens our identifications, and at the same time promotes

student biotechnology education. Finally, we will showcase how our findings are made accessible through NebraskaMushrooms.org, the state's first comprehensive online fungal field guide. It is targeted towards each park surveyed and Nebraska as a whole. Supported by the Nebraska Watchable Wildlife Grant, this platform can be discovered by park users through signage with QR codes which link to the website via smartphone cameras. Its goal is to connect land managers, biologists, and the general public to over 300 documented fungal species and counting.

### ***Restoring Landscapes, Reimagining Engagement***

Joel Bramhall, Crete Public Schools

Crete Public Schools Arboretum has long served as a public educational landscape. Recent revitalization efforts, led by the Green-Collar Internship Program under the GPA: Greenhouse, Prairie, Arboretum initiative, have transformed it into a model for digital-first, immersive engagement. Key enhancements include restoration of the prairie and greenhouse, installation of interpretive signage, and development of an interactive virtual map for self-guided navigation. These updates support experiential learning, environmental stewardship, and workforce development while blending technology, accessibility, and natural heritage. This presentation explores how this integrated approach redefines engagement and advances Nebraska's commitment to conservation education. The presenter brings professional experience from Myriad Botanical Gardens, service on the American Public Gardens Association's Editorial Advisory Board, and recognition for pioneering garden-based learning and cultivating a sense of place that connects urban and rural communities to their natural legacy.

### ***Kearney Welcome Center***

Sarah Focke, Kearney Visitors Bureau

The Kearney Welcome Center, which opened in February 2025, was created to meet the growing need for a dedicated space to engage visitors with Kearney's unique wildlife and attractions, along with must-see Nebraska highlights. Designed to provide both orientation to the Kearney area and deeper education on the Platte River, the center offers brochures, regional highlights, and a signature wildlife exhibit that has quickly become a visitor favorite.

The wildlife exhibit's four monitors bring the sandhill crane migration and Nebraska's diverse wildlife to life. Two feature immersive video and audio that replicate the experience of watching cranes from a Rowe Sanctuary viewing blind. A third showcases the variety of wildlife found across the state, while the fourth presents the Platte River Timelapse, capturing the river's seasonal transformations. Developed in collaboration with Michael Forsberg and Mariah Lundgren, the footage combines authentic storytelling with striking visuals, offering visitors an engaging glimpse into the sights and sounds of the migration.

year-round. Together, these displays create an immersive experience that encourages visitors to explore and learn about Nebraska's natural environment. Since opening, the Welcome Center has welcomed more than 4,400 visitors, who have shared overwhelmingly positive feedback and noted the exhibits' high-quality content that deepens their appreciation for Nebraska's wildlife and natural landscapes.

### ***Enhanced Snake Exhibits and Snake Saunter Class at Schramm Education Center***

Jennifer Ruyle, Nebraska Game and Parks Commission

Schramm Education Center, located at Schramm Park State Recreation Area in Gretna, was awarded a Watchable Wildlife Grant in 2024 to support the development of enhanced snake exhibits and the creation of a new "Snake Saunter" class for adults. This presentation will highlight what we were able to accomplish with Watchable Wildlife Grant funds, including the acquisition of two new terrarium enclosures to display our largest native snake species and the development of new exhibit signage about snakes. The presentation will also discuss the format, facilitation, and evaluation of a Snake Saunter class created to provide adults the opportunity to learn about snakes and how to go herping.

### ***Tales from the Scaled Side: Nebraska Reptile Month Highlights***

Monica Macoubrie, Nebraska Game and Parks Commission

Nebraska Reptile Month is an annual celebration that showcases the states diverse and ecologically significant reptile species. Join us for an in-depth review of the highlights from the past five years of this event. Our presentation will cover a range of activities, groundbreaking conservation projects, and key insights gained during the month-long celebration. Promising to be both informative and inspiring, this session will provide a thorough overview of the impact and importance of Nebraska Reptile Month. Whether you're a reptile enthusiast, a conservation advocate, or simply curious about nature, you'll leave with a greater appreciation for Nebraska's reptiles and the ongoing efforts to protect them.

**Thursday, October 9<sup>th</sup>**

### **Session: Legacy Demonstration Site**

#### ***The Nebraska Natural Legacy Project: Updates to the State Wildlife Action Plan***

Brett Andersen<sup>1</sup>, Chelsea Forehead<sup>1</sup>, Olivia DaRugna<sup>1</sup>, Jon Soper<sup>1</sup>, Gerry Steinauer<sup>1</sup>

<sup>1</sup> Nebraska Game and Parks Commission

Nebraska's State Wildlife Action Plan, the Nebraska Natural Legacy Project (NNLP), provides a science-based blueprint for conserving at-risk species, natural communities, and habitats through voluntary conservation by partners, communities, and individuals.

Required to be updated every 10 years by the U.S. Fish and Wildlife Service, the NNLP recently underwent revision informed by input from professionals and the public, resulting in the third edition. This edition introduces a new aquatic conservation chapter with Priority Watersheds, modifies Biologically Unique Landscape boundaries, adds a Biologically Unique Ecoregion encompassing the Sandhills, and updates Tier I and Tier II species lists. It also identifies species lacking sufficient data for population assessment and expands wildlife-based recreation and education to enhance public engagement. The revised NNLP reflects current scientific knowledge, integrates broad public and expert input, and emphasizes collaboration across the state to guide conservation over the next decade. By outlining key actions to conserve Nebraska's biodiversity and unique natural heritage, the plan provides guidance for proactive and effective statewide conservation efforts.

### ***Restoring an Oak Savanna at a Natural Legacy Demonstration Site: Schramm Park SRA***

Krista Lang, Northern Prairies Land Trust

The landscape at Schramm Park SRA has changed a lot since it became a park in 1937, with extensive tree and brush growth taking over areas that once were prairies, oak savannas, and open oak woodlands. Since 2020 we have been working to remove unwanted trees and brush, increase prescribed fires, and control non-native invasive plants. The restoration work will be on-going for years to come, but we are already seeing the vegetation move in a positive direction.

### ***Women and the Woodlands: Supporting our Future***

Hanna Barnes and Anna Degroot, Northern Prairies Land Trust

The Oak Woodland Workshop for Women was held on April 12, 2025 at Ponca State Park. This event was held by Northern Prairies Land Trust in collaboration with Pheasants Forever and Quail Forever, the Nebraska Game and Parks Commission, University of Nebraska - Lincoln, Audubon Society, and Natural Resource Conservation Service. The purpose of the workshop was to give female landowners and young women entering the conservation field practical knowledge about a variety of conservation subjects, as well as the opportunity to network and learn directly from female professionals. The workshop consisted of breakout sessions, each led by a mentor who emphasized hands-on skills not taught in a traditional classroom. Nearly 50 women attended, participating in everything from learning to hook up a trailer to identifying the common and scientific names of plant species. The event ended with a panel discussion between the attendees and the mentors. Topics of discussion included advice on entering a conservation career, being a woman in a male-dominated field, work-life balance, staying positive when faced with conservation challenges, and more. Participants walked away saying they felt empowered and were able to learn multiple new skills in an environment they felt comfortable and safe in.

## ***Managing Working Lands in the Public Eye***

Brady Karg and Ed Hubbs, Spring Creek Prairie Audubon Center

How we manage our working lands today helps shape the conservation leaders of tomorrow. At Spring Creek Prairie, we weave together habitat conservation, sustainable land use, and education to provide students and visitors with direct, hands-on experiences in the tallgrass prairie and beyond. By engaging young people in real-world stewardship such as bird surveys, vegetation surveys, grazing and other land management practices we show the essential connections between working lands, biodiversity, and community resilience. These immersive programs not only teach ecological principles, but also cultivate curiosity, responsibility, and belonging in nature. This session will explore the strategies we use to manage the tallgrass prairie, and how we incorporate that into our education programming, and share how fostering these connections inspires the next generation of conservation scientists and land stewards.

## **Session: Aquatic Species Monitoring**

### ***Gaining Mussel: Evaluating Reintroduction Success of Native Freshwater Mussels in Nebraska and Eastern Wyoming***

Travis Moore<sup>1\*</sup>, Mark Pegg<sup>1</sup>, Jonathan Spurgeon<sup>1</sup>, Keith Koupal<sup>2</sup>

<sup>1</sup> University of Nebraska–Lincoln

<sup>2</sup> Nebraska Game and Parks Commission

Freshwater mussels are one of the most imperiled groups of organisms in North America, with over two-thirds of species considered threatened, endangered, or of special concern. These long-lived bivalves are essential to stream ecosystems, acting as filter feeders that improve water quality and as indicators of aquatic health. In Nebraska and Wyoming, native mussel populations have declined sharply due to habitat modification, pollution, and reduced connectivity. Two species of particular concern are the Plain Pocketbook (*Lampsilis cardium*), listed as Tier I at-risk in Nebraska, and the Fatmucket (*Lampsilis siliquoidea*), a Tier II at-risk species. In response, state agencies and conservation groups have initiated reintroduction programs, stocking thousands of hatchery-reared mussels since 2016. This project evaluates the outcomes of those stocking efforts across 11 study sites in Nebraska and Eastern Wyoming. Using passive integrated transponder (PIT) tags and glue-dot marking, we monitor survival, growth, and potential recruitment of reintroduced mussels. Field surveys also collected habitat and water quality data, while fish assemblages were sampled to assess the availability of host species necessary for mussel reproduction. Data will be analyzed with mark-recapture models to estimate survival rates and population dynamics, and growth will be assessed using the von Bertalanffy growth function. By combining ecological monitoring with quantitative modeling, this study will provide critical insight into the success of mussel reintroduction efforts in the Nebraska and eastern Wyoming. Results will also inform management strategies for sustaining and

restoring native mussel populations, with implications that extend beyond Nebraska and Wyoming to other regions facing similar conservation challenges.

***Missouri River Pallid Sturgeon Monitoring.***

Derek Kane<sup>1\*</sup>, Ryan Ruskamp<sup>1</sup>, Jerrod Hall<sup>1</sup>, Kirk Steffensen<sup>1</sup>

<sup>1</sup> Nebraska Game and Parks Commission

Pallid Sturgeon are a federally endangered species that inhabit the Missouri River system. Their imperilment can be primarily attributed to extensive habitat modification of the Missouri River, specifically the creation of dams and extensive channelization of the river. In 2003, the Pallid Sturgeon Population Assessment Program (PSPAP) was launched to evaluate both annual and long-term trends in the population abundance, structure, dynamics, and geographic distribution of Pallid Sturgeon throughout the Missouri River system. Currently, Nebraska Game and Parks Commission personnel conduct three specific sampling efforts under the PSPA Program: 1) Mark-recapture sampling: to develop population estimates of Pallid Sturgeon, 2) Spring rise monitoring: to intensively track reproductive fish during their spawning migration and attempt to document spawning locations, and 3) Age-0 sampling: to confirm reproductive success by capturing larval fish. In 2024, crews conducted Mark/Recapture trotline sampling in both the late-spring and early-fall, with 440 trotline deployments resulting in the capture of 92 Pallid Sturgeon. We intensively tracked the spawning migrations of seven reproductive females and documented the successful spawning locations of four of them. Age-0 assessments conducted in June and July resulted in the collection of 358 juvenile sturgeon with genetic species identification pending.

***First Signals in the Sandhills: A PIT Tag Pilot Study of Northern Pearl Dace Movement to Guide Future Connectivity Research***

Joe Spooner<sup>1\*</sup>, Kali Boroughs<sup>1</sup>, Thad Huenemann<sup>1</sup>

<sup>1</sup> Nebraska Game and Parks Commission

Channelization and stream alteration are pervasive throughout the Great Plains, yet their impacts on small-bodied native fish remain poorly understood. The Northern Pearl Dace (*Margariscus nachtriebi*), a tier-II at-risk fish, persists in fragmented habitats of the Nebraska Sandhills Ecoregion, where spring-fed streams provide critical refuge. Previous research showed decreased survival of Northern Pearl Dace in channelized streams within the Nebraska Sandhills Ecoregion. Channelization homogenizes instream habitat which may increase movement of at-risk species due to resource competition. With limited tagging technology, few studies have quantified movement rates of small-bodied fish. A pilot study was performed with Biomark antenna arrays as part of a larger future study design to quantify movement rates of at-risk fish in channelized and non-channelized streams. The pilot study was used to test the effectiveness of the arrays and gain initial insights to the spatial scale of a study site to adequately capture movements of Northern Pearl Dace. The



results of this study may help to gain a better understanding of stream spatial scale needs for at-risk species to persist and inform future restoration efforts.

***Structured Decision-Making to Inform Management of Plains Topminnow (*Fundulus sciadicus*) in Nebraska***

David A. Schumann<sup>1</sup>, Avery Lettenberger<sup>1</sup>, Keith D. Koupal<sup>2</sup>, Cassidy Wessel<sup>2</sup>

<sup>1</sup> University of Wisconsin–La Crosse

<sup>2</sup> Nebraska Game and Parks Commission

Decision making in conservation planning requires recognition of ecological, social, and political perspectives and the economics of management strategies. Through the process of structured decision-making, stakeholders can provide expertise, and beliefs are used for deliberation of important ecological and population processes and uncertainties to identify management strategies most likely to achieve agency and stakeholder desires. The Nebraska Games and Parks Commission (NGPC) recognized implementing structured decision making was needed for Plains Topminnow (*Fundulus sciadicus*, PTM), a prioritized species for management lacking an organized management plan in Nebraska. In collaboration with NGPC, we have designed decision analysis tools to aid in managing PTM in Nebraska. Two models have been developed to the  $\alpha$ -level with a Bayesian belief network to target management and a Bayesian decision network to rank management actions at stream sites. I have outlined further sensitivity analysis and recommendations for alterations needed to complete these modeling efforts. Through this approach, a standardized, non-regulatory management plan can be used to conserve PTM in Nebraska through defensible management decisions.

**Thank you to our Sponsors!**

