2024 Nebraska Natural Legacy Conference

North Platte, Nebraska
October 8 – 10, 2024

Abstracts

Wednesday, October 9, 2024 10:00 am – 10:55 am

T & E Session

Survival of adult and hatch-year piping plovers *(Charadrius melodus)* at off-river sites in the lower Platte River system, Nebraska

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Vital rates help inform the conservation and management of threatened and endangered species. The piping plover *(Charadrius melodus*, hereafter plovers*)* is a threatened shorebird that nests in the lower Platte River system (LPRS), Nebraska. While river sandbars serve as natural nesting habitat, plovers in the LPRS often nest at different types of off-river sandpit sites (e.g., active sand and gravel mines, transition sites, and lakeshore housing developments). Although these off-river sites are not managed to prioritize plover nesting, they host many breeding plovers in the LPRS especially in years when sandbar habitat is minimally available. While off-river nesting is suspected to be important for the persistence of plovers in the region, the quantity of habitat provided at off-river sites is predicted to decline, such that evaluating adult survival among different nesting habitats in the LPRS may improve future conservation efforts. We estimated annual survival of adult (*n* = 671*)* and hatch-year (*n* = 176*)* plovers and within-season weekly survival of adult plovers (*n* = 243*)* at off-river sites using a long-term dataset from 2008-2023. Survival rates of adult and hatch-year plovers at off-river sites in the LPRS were comparable to other studies within the Great Plains population, indicating no consequence of off-river nesting to survival. There was also no evidence of a difference in adult survival among different types of off-river sites within years. Considering that plovers are becoming more dependent upon off-river habitats within the LPRS, continued monitoring of plover survival would allow managers to evaluate recovery implications under uncertain future habitat availability in the region.

Recovery Strategies for the Salt Creek Tiger Beetle: Collaboration and Innovation

Shaun Dunn[1*]

[1]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

The Salt Creek tiger beetle (Ellipsoptera nevadica lincolniana), a federally listed endangered species, has faced significant habitat loss and population declines over the past 40 years. The species' recovery plan was designed to ensure their survival in a rapidly changing habitat, but the real champion of the species has been the development of strong partnerships among governmental agencies, conservation organizations, and local stakeholders. Innovative approaches, including targeted habitat restoration and adaptive land-use practices, have been pivotal in creating and re-engineering environments for the beetle's survival. The use of a successful rearing program, which has contributed to sustaining populations and potentially increased genetic diversity, has been in use since 2011. Future predictions will be discussed.

Seed Session

Effects of seed origin and exposure to insect herbivory on root responses differ between two plant species commonly used in grassland restoration

Jordan Carfield[1*] and Dr. Jayne Jonas[1]

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Seeding is commonly used for grassland restoration. Using locally adapted seed has long been viewed as the most appropriate approach to seed sourcing under the assumption that those propagules are best adapted to pre-disturbance conditions of the region. However, the "local is best" paradigm may not be adequate given the increasing scale at which seed is needed and amid continuing shifts in climate. While many variables related to restoration seed mix design can shape grassland restoration outcomes, effects of seed origin are largely unknown. Root dynamics and associated belowground processes are important in developing plant communities and they can also be influenced by aboveground herbivory. The objective of this experiment was to examine if root biomass, root:shoot of biomass, or belowground carbon allocation of two focal plant species in a developing plant community differ based on seed origin or exposure to grasshopper herbivory. To address these objectives, a greenhouse mesocosm study was conducted in summer 2023 in which plant communities were established using a common set of six species sourced from either central Nebraska (local) or central Texas (non-local). After approximately 10 weeks, we harvested the shoots and roots of two focal species, the native warm-season grass big bluestem (*Andropogon gerardii*) and native cool-season forb black-eyed Susan (*Rudbeckia hirta*). We also included a mixture treatment with individuals originating from both the Nebraska and Texas populations growing together. Half of the replicates from each seed origin treatment (Nebraska, Texas, and mixture) were exposed to grasshopper herbivory. Grasshopper herbivory decreased total root biomass in both big bluestem and black-eyed Susan. While seed origin alone had few effects on big bluestem, black-eyed Susan from the Texas population had higher root:shoot and root carbon concentrations in response to herbivory compared to the Nebraska population. Although this experiment looked at root and carbon dynamics of only these two focal species, results suggest that seed procured from local vs non-

local populations may interact with local herbivores during early restoration in ways that could have longer-term consequences for plant community development and soil carbon dynamics.

Collecting acorns and growing out Nebraska's Dwarf Chinkapin Oaks

Justin Evertson[1*], Brad Kindler[1*], and Bob Henrickson[1]

[1] *Nebraska Forest Service / Nebraska Statewide Arboretum, Lincoln, NE*

In a few isolated areas of Richardson County, near the small town of Salem, there exist small populations of dwarf chinkapin oak (Quercus prinoides). This species is one of seven native Nebraska oaks, however, this diminutive oak can be described as shrublike and is generally found growing in upland sites with limestone rich soils. It reaches its natural northwestern range in Nebraska, and the few sites where Quercus prinoides occurs native, are all on private land. On-going working relationships with the landowners has allowed the Nebraska Forest Service to help manage these sites for unwanted woody encroachment, as well as collect acorns for propagation. At present, acorns are being grown by the Nebraska Statewide Arboretum for sale in seasonal plants sales, raising awareness about this important Nebraska native tree and its potential landscape and wildlife value.

Wednesday, October 9, 2024 11:10 am – 12:00 pm

Pollinator Session

NENHP Listed and other Unique Lepidoptera of the Loess Hills and South Central and Southwest Nebraska

Neil Dankert [1*]

[1] *Master Naturalist and author of Nebraska Lepidoptera website, NE*

List and present status on NENHP listed Lepidoptera found in the loess hills of south central and southwest Nebraska including: *Amblyscites nysa, Amblyscirtes oslari, Atrytone arogos, Atrytonopsis hianna, Colias cesonia, Danaus plexippus, Euphyes vestris, Glaucopsyche lygdamus, Hesperia colorado, Hesperia uncas, Hesperia ottoe, Hesperia metea, Megathymus streckeri, Megathymus yuccae, Mitoura grynea, Papilio bairdii, Phyciodes pictus, Poanes hobomok, Polites origenes, Satyrium liparops, Satyrium titus, Speyeria idalia, Thessalia fulvia.*

Wild Bee Species Abundance and Floral Preference on University of Nebraska-Lincoln Campus

Paige Myers[1*], Dr. Autumn Smart[1], and Dr. Judy Wu-Smart[1]

[1] *University of Nebraska-Lincoln, Lincoln, NE*

In Nebraska, roughly 98% of tall-grass prairie, the native habitat for many wild bees, has been lost to cropland and urbanization; with many of our biologically unique landscapes also

facing similar declines. As the spread of urbanization continues throughout Nebraska, it's important to consider how these urban landscapes can be altered or designed to support native pollinator communities. With these changes being made to our landscapes, it will be increasingly important to continue monitoring efforts and evaluate how we can better support and sustain wild bee populations. The aim of this project was to survey the wild bee communities, and their plant interactions, found on the University of Nebraska-Lincoln campuses. By surveying the foraging preferences of wild bees on an urban university campus, we can better understand the role landscaping and garden design play on driving pollinator communities in urban, multi-use, and high-trafficked spaces. The results of this project will be used to encourage the University of Nebraska-Lincoln to join the Bee Campus USA initiative. Bee Campus USA is an initiative, spearheaded by the Xerces society that encourages college campuses around the country to implement and sustain pollinator friendly practices and policies.

Herps Session

Seven year update of Herpetological Surveys in the Loess Canyons

Colleen Rothe-Groleau [1*]

[1]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

What started as a search for speckled kingsnakes turned into a regularly occurring survey for all Tier 1 & Tier 2 species of reptile and amphibian in the Loess Canyons Biologically Unique Landscape. These surveys have been directly affected by drought, fire, a bomb cyclone, floods, extreme temperatures, Covid, and more. Plans for the future of these surveys will now include passive drift fence camera trapping on private lands and will be seeking landowner input to better direct the placement of additional cover boards and/or drift fences.

Scales and Tales: Highlights of Nebraska Reptile Month

Monica Macoubrie [1*]

[1]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

Nebraska Reptile Month is an annual celebration that showcases the state's diverse and ecologically significant reptile species. Join us for an in-depth review of the highlights from the past four 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 10, 2024 8:30 am – 10:10 am

Mammals Session

Ensuring Genetic Diversity within a Conservation Bison Herd

Joshua Wiese [1*]

[1] *Platte River Whooping Crane Maintenance Trust, Wood River, NE*

The decimation of bison across the Great Plains of North America greatly reduced the species genetic diversity. Genetic diversity was further bottlenecked through small founder herds and subsequent isolation when the first federal herds were established. Reduced genetic variability in bison can lead to heightened vulnerability to diseases, reduced reproductive success, and diminished long-term resiliency to environmental change. The Crane Trust's genetic model aims to address these challenges by identifying and promoting genetic uniqueness and heterozygosity within their bison herd. Genetic uniqueness refers to the presence of rare alleles within a population, while genetic heterozygosity measures the variability of alleles at a given locus. The model uses genetic monitoring, parentage, and unique genetic lineages to help managers make culling and reintroduction decisions. The model seeks to increase the genetic variability of bison calves and reduce inbreeding risk, thereby enhancing their adaptability to changing environments and mitigating the risks associated with genetic bottlenecks. This presentation will detail the methodology and effectiveness of the Crane Trust's genetic model and discuss the implications for future conservation strategies. By prioritizing genetic diversity, we can enhance the resilience of bison populations, thereby contributing to the broader goal of sustaining North American prairies and their associated ecosystems.

Bat Calls for Conservation: The Nebraska 2024 NABat Program

Derek Krueger [1*]

[1]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

Nebraska's bat populations are currently at risk from white nose syndrome, commercial-scale wind energy developments, pesticide use, and land fragmentation. To effectively conserve Nebraska's remaining bat populations, long term monitoring is needed statewide. Long term monitoring will provide crucial information on bat populations that can aid conservation efforts in Nebraska and in neighboring states. Since 2016 Nebraska has participated in the international North American Bat Monitoring Program (NABat) to establish a long-term acoustic monitoring program in coordination with United States Geological Survey and many other partners. In 2024, 36 pre-established 10 x 10 km grid cells were visited to conduct acoustic surveys. At each grid cell stationary acoustic devices were deployed for a minimum of four nights and two mobile (i.e., driving) surveys were conducted following a predetermined route. Bat calls collected from each stationary site and mobile route were then analyzed to determine bat species. These data will provide valuable insights on current populations and range status, but survey efforts must continue to better understand how bat populations are changing over time.

Comparing Pre and Post White-nose Syndrome Distributions of Three Bat Species in Eastern Nebraska

Daniel Peacock[1], Thomas Raad[1], Amanda Ciurej[2], Mark Porath[2], Jeremy White[1], Han Li[1*]

[1] *Department of Biology, University of Nebraska Omaha, Nebraska, USA*

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White-nose syndrome has caused severe declines in the populations of northern long-eared bats (*Myotis septentrionalis*), little brown bats (*Myotis lucifugus*), and tri-colored bats (*Perimyotis subflavus*) in the eastern United States since it was first detected in 2006. However, little is known about how these species were impacted in Nebraska where white-nose syndrome was first detected in 2016. Before white-nose syndrome was detected in Nebraska, an assessment of these species was conducted acoustically at 105 sites throughout eastern Nebraska between 2012 and 2014. In 2024 summer, we revisited 72 of the 105 previously surveyed sites and added 41 new sites to assess the impact of white-nose syndrome. We followed the North American Bat Monitoring Program Stationary Survey protocol for a more robust dataset. Our preliminary results from the first 60 sites were manually vetted for false positive detections showed presence of tri-colored bats and little brown bats at approximately 40% of sites. However, only one out of 60 sites had northern long-eared bat detections. We will continue manually vetting for the remaining sites and to account for both false negative and false positive detections. From this data we will construct before-and-after white-nose syndrome species distribution models to examine how the disease has impacted the distributions of the three species. These distribution models will be used to generate distribution maps that will be used to determine each species' level of decline, where remnant populations might be, and what kinds of habitats support these remnant populations. Assessment of the impact of white-nose syndrome on these three species will provide insights on how to prioritize key habitat protection to ensure long-term bat conservation in the Great Plains.

Acoustic Bat Monitoring Along the Central Platte River in Nebraska

Jonathan Wentz[*1], Ethan Ideus[1], Alyx Vogel[1]

[1]*Headwaters, Executive Director's Office, Platte River Recovery Implementation Program*

The Platte River Recovery Implementation Program (PRRIP or Program) focuses on enhancing, restoring, and protecting habitat for threatened and endangered species in the Platte River basin. PRRIP habitat management has prioritized providing benefits for four target species: piping plover, interior least tern, whooping crane, and pallid sturgeon. However, in an effort to reduce the likelihood of future listings, PRRIP works together with the United States Fish and Wildlife Service (USFWS) and Nebraska Game and Parks Commission (NGPC) to evaluate the need for habitat protection and potential for providing benefits to other species of conservation concern when those actions would not compromise the ability of the Program to accomplish target species objectives. Upon request, the Program performs surveys to determine the presence of species of concern. Recent listings and consideration for listing of three bat species in Nebraska including the northern long-eared bat (*Myotis septentrionalis*), the tricolored bat (*Perimyotis subflavus*), and the little brown bat (*Myotis lucifugus*) have prompted PRRIP

biologists to receive appropriate training and conduct an acoustic bat monitoring pilot study along the central Platte River. Acoustic monitoring was conducted concurrently at four PRRIP-managed properties between May 15 - August 15, 2024 following the USFWS survey guidelines. A single acoustic monitor was rotated among seven locations within a single property to collect approximately two weeks of data at each location. Sampled areas were mainly within the riparian zone along the Platte River including riparian forest, grasslands, and water sources. After initial processing to remove noise and improve quality of recordings, species identification will be performed using Kaleidoscope Pro automated software. Results of acoustic bat surveys by PRRIP will help determine the presence or probable absence of the three bat species along the central Platte River and add information to existing data on current species distributions in Nebraska. In consultations with the USFWS and NGPC, the information will also be used to determine when proposed PRRIP management actions are not likely to adversely affect these bat species or when management may be able to provide benefits for existing populations on Program-managed lands.

Grassland & Rangeland Ecology Session

Impacts of encroaching smooth sumac (*Rhus glabra*) on herbaceous sandhills species and environment

Lillie Hoffart [1*], Chris Helzer[2], and Sabrina E. Russo[1]

[1] *School of Biological Sciences, University of Nebraska – Lincoln, Lincoln, NE*

[2] *The Nature Conservancy, NE*

Smooth sumac (*Rhus glabra)* is a woody, clonal shrub that is encroaching on the Nebraska sandhills, an important, largely intact grassland region. Many areas are still in the early stages of sumac encroachment, so now is a critical time to quantify impacts . This project investigates the effects of sumac encroachment on prairie and rangeland herbaceous plant diversity, productivity, and environmental conditions and the ecological mechanisms involved. We tested the hypothesis that sumac negatively impacts grasslands by outcompeting other plant species and that sumac is associated with environmental conditions that differ from nearby sandhills prairie. During summer 2024, along a sumac density gradient, we measured herbaceous species diversity, composition, biomass, and root:shoot allocation; soil water availability, properties, and temperature; air temperature and relative humidity; and light availability. Preliminary results indicate that herbaceous plant productivity, but not diversity, declines with increasing sumac density. However, species composition of the herbaceous plants varied between sumac patches and prairie. This indicates that sumac competes with herbaceous prairie species and can alter community composition, though sumac’s presence does not immediately mean a diversity decline.

EFFECTS OF WILDFIRE ON GRAZED SEMI-ARID GRASSLANDS

Megan tenBensel[1*], Dr. Bryan Drew[1], and Dr. Jayne Jonas[1]

[1] *Department of Biology, University of Nebraska at Kearney, Kearney, NE*

Grassland ecosystems are adapted to and maintained by periodic fire and grazing. However, management often focuses primarily on cattle grazing and fire suppression in many working lands despite the potential benefits of occasional burning. In late April 2022, the Road 702 Wildfire burned an estimated 18,000 hectares of privately owned semi-arid grasslands in northwestern Kansas and southwestern Nebraska. Although characteristics of wildfire can differ from those of prescribed fire, this study was initiated in fall 2022 to monitor impacts of the Road 702 wildfire on plant cover and community composition over time. Specifically, this study compares three sites: an overgrazed pasture that was burned in the fire, an ungrazed pasture that was burned in the fire, and a control pasture that was not burned and has not been grazed by cattle in at least 20 years. Twenty permanent 1-m^2 sampling plots were randomly located in each site and plant species cover monitored in fall 2022, summer 2023, and summer 2024. Through summer 2023 monitoring, results suggest marginally higher species richness and lower proportion of non-native species on burned sites compared to the unburned control. However, community-level ordination analyses indicate that the burned site subject to past overgrazing was most different than both ungrazed sites (burned and unburned). Monitoring in summer 2024 also included estimating plant production to better understand potential impacts longer-term impacts of fire on ecosystem function and forage availability in this semi-arid landscape that had not been burned in several decades. This study will help inform the possible use of fire as a management tool in this area by elucidating plant diversity and production patterns under the influence of both fire and livestock grazing.

Using spring and fall grazing to benefit at-risk butterflies

Gerry Steinauer[1*]

[1]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

This presentation will explain how intensive spring and fall grazing of grasslands can enhance habitat for the Tier 1 regal fritillary and monarch butterflies. This type of grazing can weaken invasive cool-season grasses, such as smooth brome and Kentucky bluegrass, while promoting the growth of native grasses and wildflowers that benefit these butterflies, including violets, milkweeds, and pitcher sage. Additional management practices, such as prescribed fire, selective herbicide application and interseeding, can complement this grazing strategy to further support the butterflies and other wildlife.

University of Nebraska-Lincoln's Barta Brothers Ranch: 25 Years of Range Ecology Research and Future Directions of the Site

Jacob Harvey [1*]

[1] *UNL Barta Brothers Ranch, Bassett, NE*

The University of Nebraska-Lincoln's Barta Brothers Ranch (BBR) is a 5,000-ac research facility located in the eastern Nebraska Sandhills ecoregion. This site was donated to the NU Foundation in 1993 by Clifford and James Barta and has seen a variety of research since the university took over in 1999. A continuous herbage production study has been in place since then to assist researchers with understanding the fluctuations that plant communities undergo. Other historic projects included plant community composition, effects of high intensity grazing systems on Sandhills plant communities, sand dune destabilization, and greater prairie chicken (*Tympanuchus cupido*) nest site selection. As part of these projects, over 25 master's and PhD students have conducted their theses at this site alongside numerous undergraduate research opportunities. Current research has turned towards management of invasive plants such as eastern redcedar (*Juniperus virginiana* L.) and leafy spurge (*Euphorbia esula* L.). Herbicide use, prescribed fire, and mechanical removal are being conducted to combat the spread of invasive species as well as look at the impact these methods have on the native plant and animal communities. The Collaborative Adaptive Management (CAM) project is the preeminent research project occurring on site that is attempting to use prescribed fire to manage the landscape for control of eastern redcedar, increased cattle performance, and potential revitalization of plant communities through disturbance. Future research will be guided by input from rancher advisory panels as well as ecological issues made known by conservation agencies such as Nebraska Game and Parks Commission, US Fish and Wildlife Service, and US Forest Service. This site serves as part of the Agricultural Research Division for the University of Nebraska's Institute of Agriculture and Natural Resources. Research, extension, and education efforts are part of its core values and BBR welcomes collaboration opportunities.

Thursday, October 10, 2024 10:25 am – 12:05 pm

Birds & Fish Session

Lake Ogallala and the Terrible, Horrible, No Good, Undesirable Fish

Alexandria Keiler-Klein [1*] , Dr. Melissa Wuellner[1], and Keith Koupal[2]

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[2]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

Water quality issues in reservoirs can favor generalist species that may be invasive, if introduced, or a nuisance, if native. In turn, these species may further exacerbate water quality conditions through feeding and reproductive behaviors. To develop a more balanced community, management agencies have used piscicides such as rotenone to re-set specific aquatic systems. In Nebraska, Lake Ogallala has been subject to four rotenone treatments since

1969, including one in October 2023, stemming from poor water quality conditions from hypolimnetic discharges and the entrainment of fishes from Lake McConaughy through the Kingsley hydro-dam. Here, we describe the composition of the fish community at the time of rotenone application, the changes of the fish community in the following year as fish recolonize the system, and the associated changes in water quality. Prior to renovation, Common Carp dominated the biomass within the system, but preliminary data from 2024 shows slow recolonization. Additionally, White Suckers were the third-most dominant species by biomass prior to renovation. However, relative abundance has remained reduced in 2024. Water quality data collected since April 2024 indicates improved water clarity paired with decreased turbidity. This presentation will outline the response of the aquatic system to renovation and provide insight on the process of recolonization.

CORRELATES OF SANDHILL CRANE OFF-CHANNEL ROOSTING AND EARLY ROOST DEPATURE IN THE PLATTE VALLEY

Bethany L. Ostrom [1*] and Andrew J. Caven[2]

[1] *Platte River Whooping Crane Maintenance Trust, Wood River, NE*

[2]*International Crane Foundation, Baraboo, WI*

During spring migration, more than 1 million Sandhill Cranes stage along the Platte River in central Nebraska. Appropriate river flows can support ideal depths for roosting and provide protection from terrestrial predators. Cranes and other waterbirds occasionally roost outside of the river channel or reduce diurnal activity therein but conditions under which this occurs remain poorly defined. Despite the ability to influence flows in this highly managed river system, many hydrological factors remain outside of managers' control. We examine the proportion of Sandhill Cranes detected in non-riverine habitat during weekly aerial surveys from mid-February to mid-April from 2016 to 2023. Gamma family Generalized Linear Models predicting off-channel relative abundance during surveys were compared using Akaike Information Criterion corrected for small sample sizes to assess the phenological and hydrological conditions associated with increased terrestrial occurrence. The proportion of cranes off-channel peaked when crane densities were ostensibly highest near mid-migration. Incidents of icing and increased daily variation in river flows were positively associated with off-channel relative abundance. Operations appreciably amplifying daily river fluctuations may decrease the suitability of roosting conditions for cranes. Top models included weekly precipitation and drought occurrence, showing Sandhill Cranes respond differently to short-term and long-term changes in hydrological conditions. Short-term wetter hydrological conditions provide more standing water for alternative roosting locations in palustrine wetlands. Whereas prolonged drought negatively affects riverine roosting habitat. High flows were not associated with off-channel roosting, but we only observed one instance where mean flows exceeded 5,000 cubic feet per second. In this instance, a large proportion (~40%) of cranes were detected off-channel.

Differences in bird abundance between lands enrolled in the Grassland Conservation Reserve Program and grasslands in western Nebraska during 2022–2023

Jason Bruggeman[1*] and Anne Bartuszevige[1]

[1] *Playa Lakes Joint Venture, Lafayette, CO*

Grassland bird populations have declined dramatically over the past 50 years, primarily due to loss of native grasslands resulting from conversion to agriculture. The Conservation Reserve Program (CRP) provides farmers a yearly rental payment in exchange for removing lands from agricultural production and planting species that may benefit wildlife species. Grassland CRP is part of the CRP, but is a working lands program that emphasizes protecting rangeland and pastureland while allowing for grazing and haying. We used abundance data from 16 bird species collected using a systematic distance sampling and time-to-removal approach on lands enrolled in Grassland CRP and on grasslands that had not been previously cultivated in western Nebraska during 2022 and 2023 to examine whether abundance was different on Grassland CRP lands. We analyzed data using distance-removal models on two spatial scales: (1) a 1-km^2 Primary Sampling Unit (PSU) consisting of ≤16 point transect locations; and (2) a 0.049-km^2 area centered on each point transect location. At the PSU scale, Horned Larks had significantly higher estimated abundance in PSUs on Grassland CRP lands (20.9 birds) compared to PSUs on grasslands (1.93 birds). Grasshopper Sparrows and Lark Buntings had higher abundance in PSUs on Grassland CRP lands; however, 95% CIs of estimated abundance on Grassland CRP lands and grasslands overlapped for both species. At the point transect location scale, Grasshopper Sparrows, Horned Larks, Lark Sparrows, Ring-necked Pheasants, and Thick-billed Longspurs had significantly higher estimated abundance at point locations on or near Grassland CRP lands compared to those on grasslands. Estimated abundance per 0.049-km^2 for each species was 3.82 birds (on Grassland CRP) to 2.46 birds (on grasslands) for Grasshopper Sparrows; 2.66 birds to 0.608 birds for Horned Larks; 0.518 birds to 0.305 birds for Lark Sparrows; 0.057 birds to 0.016 birds for Ring-necked Pheasants; and 0.212 birds to 0.077 birds for Thick-billed Longspurs. We are continuing our work to better understand these relationships through inclusion of land cover and vegetation attributes covariates in models, and adding data from the 2024 breeding season. Our approach will afford a multi-scale examination of factors related to bird abundance on Grassland CRP lands, and provide a comparison of land cover and vegetation attributes between Grassland CRP lands and grasslands in western Nebraska.

Migratory Movements and Connectivity of Neotropical Warblers in Nebraska using light-level geolocators

Stephen Brenner[1*], Joel Jorgensen[2]

[1]*Audubon Great Plains, Nebraska*

[2]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

Bird migration remains one of the most exhilarating and mysterious phenomena in the natural world. Recent advances in animal tracking technology allows for unprecedented insight

into individual movements, migratory connectivity and population dynamics for many different species of birds. Using light-level geolocation tracking devices, recent research in the state looks to examine the annual cycle movements and migratory connectivity of Neotropical warblers that breed within multiple Biologically Unique Landscapes in Nebraska. This novel dataset has identified previously unknown wintering grounds and key migratory pathways for Ovenbirds range-wide as well as in Nebraska. This work also highlights the importance of Nebraska as a key breeding site for isolated populations at the edge of their continental ranges.

Riparian Communities Session

Collaborative conservation for ecological resilience in the Platte River Basin

Melissa Mosier [1*] and Brett Roberg[2]

[1]*Audubon Great Plains, Nebraska*

[2]*Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE*

The Platte River flows through a landscape that offers both challenges and opportunities for conservation of Nebraska's priority species. Systems of water management and built infrastructure have harnessed the once dynamic flow of water and sediment for the benefit of the millions of people whose livelihoods and well-being are supported by the Platte. The benefits offered by this highly managed river system also have consequent and enduring environmental impacts. Working toward a long-term, whole-ecosystem approach, conservation organizations have partnered to investigate and implement water management policies and practices that foster resiliency along the Platte's riverscape. This partnership with a Vision for an Ecologically Sound Platte River (VESPR) used a collaborative environmental planning process to identify the major drivers steering the Platte River ecosystem toward or away from future desired ecological conditions. Through this effort, the VESPR partners determined that the North Platte chokepoint stood as one of the most important obstacles impeding ecological functionality along the central Platte River. This presentation will describe what the North Platte chokepoint is, the challenges that it poses to hydrological and ecological functionality along the Platte River, priority species impacted, and the paths that VESPR and partners have proposed to alleviate its impact.

Understanding River Connections and Building Partnerships around the North Platte Chokepoint

Ashley Gramza[1*] and Melissa Mosier [2]

[1] *Playa Lakes Joint Venture*

[2]*Audubon Great Plains, Nebraska*

The Platte River system is vital for drinking water, crop irrigation, wildlife habitat, ecotourism, recreation, and a variety of municipal and industrial uses. This river system is now highly managed, yet current management systems were not designed with long-term community and ecosystem sustainability or resiliency in mind. A group of conservation organizations in Nebraska realized an interdisciplinary approach is required to meet the challenges faced by

wildlife and human communities within the Platte River Basin so they worked to form a collaborative group named Vision for an Ecologically Sound Platte River (VESPR), to develop and implement a long-term (>50 year) vision for the Platte River. Through a conservation prioritization process, VESPR determined that an area of increasing river constriction located at the confluence of the North and South Platte Rivers, called the North Platte chokepoint, would need to be restored for other desired ecological conditions to be achieved. Because any management interventions to restore the chokepoint may also affect community members, 19 semi-structured scoping interviews were conducted with various city decision makers and community members who live in and around North Platte to understand their thoughts about and perceptions of the rivers. These scoping interviews helped VESPR partners begin building connections and relationships in North Platte and provided a better understanding of North Platte community members' perceptions of risks and benefits related to the North and South Platte River, the various ways people interact with and connect to the rivers, their information needs related to the rivers, and their thoughts surrounding the chokepoint and its causes. We found that the rivers are important to almost everyone interviewed, and they are especially important for recreation and the economic vitality of the community. Although there was no consensus about the severity or likelihood of flooding risk, it was clear that people realize flooding risk exists, with many mentioning that the only constant related to the rivers is change. To help develop and build support for chokepoint solutions that work for both the community and environment, we offer the following recommendations: 1) Communicate about key chokepoint causes and potential solutions; 2) Cultivate key partners; 3) Expand partnerships; 4) Address additional Platte River challenges and engage on emerging issues beyond the chokepoint.

Vegetative Community Response to Wet Meadow Restoration

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Anthropogenic modifications over the last century, such as damming and diversions, have led to reduced flow, modified hydroperiod, and reduced sediment transport within the Platte River. Changes to historic river conditions have resulted in the loss of 75-80% of wet meadow habitat within the Central Platte River Valley. In response, wet meadow restoration procedures have been conducted by federal, state, and local organizations for decades which include tree clearing, reseeding, and recontouring practices. Evaluations of these previous efforts to restore wet meadow habitat in the Central Platte River Valley are necessary to not only determine the progress of wet meadow restorations but also to inform future management. This study achieves these goals through examination of vegetative community data collected from native (n = 54), rehabilitated (n = 11), and reconstructed (n = 14) wet meadow sites along the Platte River during the summers of 2020-2022. We found that vegetative communities of native and rehabilitated sites were similar and significantly differed from the vegetative communities of reconstructed sites. Native sites showed significantly greater coverage of *Carex*, *Eleocharis*, and other wetland indicator species (i.e., *Calamagrostis stricta*, *Muhlenbergia asperifolia*) than what was seen at reconstructed sites, representing greater hydrologic connectivity at native wet meadow sites than reconstructed sites. Improved hydrologic management of reconstructed wet meadow sites and a continued focus on the hydrology of restored wet meadow sites is likely necessary to progress wet meadow recovery in the Central Platte River Valley.

In the Country of the Kaw: Biodiversity and Environmental History of Nebraska's Quiet Quarter

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In his recently published book, *In the Country of the Kaw*, Nebraska botanist Jim Locklear profiles the biodiversity and environmental history of the watershed of the Kaw (Kansas) River, which arises on the High Plains of Colorado, Kansas, and Nebraska and joins the Missouri River in Kansas City. The Kaw is America's true prairie river, gathering its waters on the plains and traversing shortgrass, sandsage, mixed-grass, and tallgrass prairie. The Nebraska portion of the Kaw River basin lies in the southwest and south-central parts of the state and encompasses the watersheds of the Republican and Big Blue Rivers. The presentation will provide an ecological overview of the entire Kaw watershed, then focus on the Nebraska portion, what might be called the state's "Quiet Quarter"—less well-known than the Sandhills, Pine Ridge, Platte River valley, and other celebrated landscapes.