2022 Virtual Conference: The Colorado Chapter of The Wildlife Society

March 9, 2022, 9:00 am to 2:20 pm MDT

Zoom: https://csupueblo.zoom.us/j/96122343428

AGENDA

Business Meeting

9:00 to 9:10 – Welcome and Introductions

Nate Bickford (CCTWS Chapter President)

9:10 to 9:15 – Treasurer's Update

Matt Rustand (CCTWS Treasurer)

9:15 to 9:20 - Election Results and New Member Introductions

Nate Jones (CCTWS Chapter President-Elect)

9:20 to 9:25 – Jim Olterman Memorial Update

Nathan Galloway (CCTWS Chapter Past-President)

Committee Updates

9:25 to 9:30 – IDEA Committee Update

Pat Magee (IDEA Committee Chair)

9:30 to 9:35 – Newsletter Committee Update

Alexandra Fortney (Newsletter Committee Chair)

9:35 to 9:40 – Professional Development Program Committee Update

Elizabeth Peterson (Professional Development Committee Chair)

Student Chapter Annual Reports

9:40 to 9:50- Colorado State University Student Chapter 2021 Report

Remi Pattyn (CSU Student Chapter President)

9:50 to 10:00 - Colorado State University - Pueblo Student Chapter 2021 Report

Grace Abbott (CSU Pueblo Student Chapter President)

10:00 to 10:10 - Western Colorado University Student Chapter 2021 Report

Alyssa Rawinski (WCU Student Chapter President)

10:10 to 10:30 – Update from Central Mountains and Plains Section

Shelly Deisch (CMPS Section President)

10:30 to 10:45 – Short Break

Annual Meeting

10:45 to 10:50 – Introductions

Nate Jones (CCTWS Chapter President-Elect)

10:50 to 11:20 - Keynote Address

Ed Arnett (CEO, The Wildlife Society)

11:20 to 11:30 – Question & Answer Session

Contributed Presentations (*Student presenter)

11:30 to 11:45 – Using a Livestream Camera as an Educational and Scientific Tool to Examine Sandhill Crane Nesting Behavior

Erin Gelling (Colorado Crane Conservation Coalition) and Van Graham (Colorado Crane Conservation Coalition)

Abstract: Greater sandhill cranes (*Antigone canadensis tabida*) are a long-lived species with low reproductive output and a State Special Concern species in Colorado. Though previous research has focused on crane nesting success, little is known about their behavior during nesting and incubation. We established a livestream video camera in 2021 on a nest in northwest Colorado to be used as an educational and scientific tool. The camera was closely monitored before, during, and after incubation. The camera successfully recorded the crane pair night roosting before nesting, copulating, nest building, laying 2 eggs, incubating, and hatching one egg. The camera also recorded the chick in the nest within the first 2 days after hatching, the chick feeding with the parents nearby after leaving the nest, and several predation attempts by raccoon and mink. All recorded predation attempts occurred between 1958 – 0600 MDT when the female was incubating. The female

incubated on average 15.4 hours (64.2%) and the male incubated on average 8.2 hours (34.2%) per day. The female returned to the nest for the morning incubation exchange between 0629–0823 MDT and evening exchange between 1408–1956 MDT. Educating the public about crane nesting and collecting scientific data can be done simultaneously when using creative tools like a livestream camera. This camera revealed the basic nesting behavior of a biparental precocial bird and the literature gaps for crane nesting ecology. Findings from this camera demonstrate that more research is warranted to examine basic sandhill crane incubation behavior and nesting ecology.

11:45 to 12:00 - Differential stress experiences in niche-tracking and niche-switching yellow warblers

Noelle Mason** (Colorado State University), Mariana Rodriguez (Colorado State University), Kristen Ruegg (Colorado State University)

Abstract: Conservation of biological diversity is increasingly challenging as the global climate rapidly changes. Recent work supports the idea that avian populations, which have declined by 2.9 billion birds since the 1970s, are able to persist in the face of changing climate conditions based on the extent of climate specialization across the annual cycle. Climate specialists track their climate niche across the annual cycle, whereas generalists which switch their climate niche between seasons. However, ornithologists understanding of what happens on North American birds wintering grounds is often limited. Here we take advantage of a rare opportunity to study the potential implications of climate tracking and climate switching on individuals in the yellow warbler (*Setophaga petechia*), where the extent of climate tracking across the annual cycle has been extensively quantified. Because niche-trackers and switchers likely experience differential stress, this study aims to understand whether niche-switching and niche-tracking populations differ in telomere length. Telomeres reflect stress throughout an organism s life history and are strongly correlated to an individuals relative lifespan and fitness. Environmental stressors, such as those experienced as a result of niche-tracking or switching, accelerate this attrition. Understanding stress impacts associated with migration to wintering ground niches may help to reveal the selective pressures exerted on yellow warblers outside of their breeding grounds. This knowledge could even illuminate the adaptive capacity of climate specialists compared to generalists. Implications from this study will support conservation efforts of birds and other migratory taxa in the face of rapid climate change.

12:00 to 12:30 – **Lunch Break and Virtual Networking**

Students and Professionals, please join for a short meet & greet, question & answer session.

12:30 to 12:45 - Evaluating wet meadow habitat restoration success for Gunnison sage-grouse

Heather Reynolds* (Western Colorado University), Jessica Young (Western Colorado University), Nathan Seward (Colorado Parks and Wildlife), Renee Rondeau (Colorado Natural Heritage Program), Sarah Marshall (Colorado Natural Heritage Program)

Abstract: Understanding Gunnison sage-grouse (*Centrocercus minimus*) critical seasonal habitat requirements is key to their conservation. Improving brood-rearing habitat may aid in chick and juvenile survival into the breeding population. It is unknown if ongoing habitat restoration efforts in Gunnison, CO are directly benefitting Gunnison sage-grouse (GUSG); a species that was federally

listed as threatened in 2014. From 2016-2020 we placed 30 camera traps equally on treated wet meadows that had previously received restoration structures, and nearby control sites that had not, in order to target GUSG. We continuously collected photos during GUSG brood-rearing season (July – October) each year and recorded number of individuals in each photo. Wet meadow vegetation data was compiled from local agencies that monitored similar habitats. The objectives of this study are to assess GUSG use of treated versus control wet meadows over time and determine if there is a relationship with regional drought indices and change in wetland vegetation cover on those types of sites. This study is currently in the analysis phase. Results of the study will be presented along with management recommendations and future studies needed.

12:45 to 1:00 - The tangled food web we weave: human recreation impacts on spatiotemporal niche and interactions in a wildlife community

Eli Wildey* Colorado State University – Pueblo), Matthew Rustand (Bureau of Land Management), Nate Bickford (Colorado State University – Pueblo)

Abstract: Outdoor recreation extends human influence on landscapes beyond built environments but is often thought to be compatible with wildlife conservation. Human capability as a highly efficient predator creates a strong selective force on wildlife, analogous to natural predation risk, regardless of trophic level. Shifts in the spatiotemporal niche has been identified across taxa, in response to this consistent human presence. How these changes alter interactions such as competition and predator-prey dynamics and potentially cascade across trophic levels; represents an important step in understanding and mitigating the impact of our everyday presence on the ecosystems we depend on. Here we present preliminary results of the spatiotemporal shifts exhibited by a wildlife community by comparing movement between a control area and a high-use trail network. Location data are analyzed for a wildlife community composed of mule deer (*Odocoileus hemionus*), mountain cottontail (*Sylvilagus nutallii*), gray fox (*Urocyon cinereoargentus*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*) and coyote (*Canis latrans*). Activity patterns are calculated and compared using hourly mean movement rate across the day. Habitat selection for prey species will be modelled using step selection functions (SSFs). Mesopredator habitat selection will be calculated from foraging specific behavior as determined by Hidden Markov movement models and analyzed using resource selection functions (RSFs). It is predicted that mesopredator species shift activity patterns nocturnally to adapt to human activities on the trail network. It is predicted that mule deer and cottontails will shift activity patterns and habitat use.

1:00 to 1:15 - What greens give thumper long ears and big feet, understanding the influence of vegetation on space use of desert cottontails

Samantha Bundick* (Colorado State University – Pueblo) and Nathan Bickford (Colorado State University – Pueblo)

Abstract: The Desert Cottontail (*Sylvilagus audubonii*) is a highly valuable prey species for a number of predators both terrestrial and avian. In Colorado this species faces multiple threats to their populations, including the presence of Rabbit hemorrhagic Disease Virus 2 (RHDV2) and major habitat loss due to anthropogenic and environmental factors. Despite their key role in the ecosystem, there is limited research or monitoring of the desert cottontail in Colorado. Our objective is to help improve future conservation efforts by identifying habitat characteristics that are

essential for cottontails, such as refugia locations. To do this, we will investigate the effects of vegetation patterns on space use and selection of 30 collared desert cottontails. To determine fine-scale vegetation characteristics we will use satellite imagery and object-based imagery analysis (OBIA) to produce vegetation maps. Then we will overlay the telemetry data on the vegetation maps to create resource selection functions (RSF), which will highlight areas of importance. Our preliminary results show desert cottontails are selecting for high shrub cover and low shrub cover. Specifically, that cottontails use extremely thick shrubs and prairie dog colonies. These habitat features likely provide multiple benefits for cottontails, including refugia from predators and thermoregulation. These preliminary results illuminate the relationship between diversity of key habitat features and long-term stable desert cottontail populations within the semi-arid grassland ecosystem and will allow land managers to identify and promote desert cottontail habitat.

1:15 to 1:30 - American badgers and the prairie games they play: resource selection in a central shortgrass prairie

Hunter Westacott* (Colorado State University – Pueblo), Samantha Bundick* (Colorado State University – Pueblo), Eli Wildey* (Colorado State University – Pueblo), and Nathan Bickford (Colorado State University – Pueblo)

Abstract: While American badgers (*Taxidea taxus*) serve several ecosystem functions, their reputation for being a nuisance species has led them to be understudied, resulting in gaps in knowledge on their behavior and ecology. In North America, there have been dramatic reductions in native prairie range due to climate change, agriculture, and development, forcing this traditionally prairie obligate species to adapt to increasingly impacted habitats. This makes it important now more than ever to gain a better understanding of badger behavior and ecology. The objective of our study is to provide essential baseline knowledge of American badger resource and space use, and how it relates to percentage of shrub cover in a central shortgrass prairie ecosystem. To do this, we captured and fit Cellular Tracking Technologies PowerTag collars to badgers. These collars provide fine-scale location data, allowing us to get one GPS location every ten seconds. To determine percent shrub cover we utilized remote sensing technologies to produce resource maps. We then analyzed movement data within those maps to create resource selection functions (RSF), providing us with insight into the resources that badgers were preferentially selecting for. Preliminary results indicate that during the late winter months, our badgers tend to use various levels of shrub cover relatively uniformly but are selecting slightly more for higher shrub cover. Our goal is to fill in gaps in knowledge on badger resource selection in a shortgrass prairie ecosystem to provide conservationists with information to identify and promote habitat most beneficial for American badger conservation.

1:30 to 1:45 - Managing Human/Golden Eagle Conflict: Best Practices for Relocating Golden Eagles

Kristen N. Amicarelle* (Colorado State University – Pueblo), Mike Barker (International Eagle Austringers Association), and Nate A. Bickford (Colorado State University – Pueblo)

Abstract: Golden Eagle (*Aquila chrysaetos*) depredation on sheep is causing a significant human wildlife conflict that is negatively impacting ranchers and eagles. Identifying and introducing best conservation practices for eagle relocation can help reduce this conflict, and in turn improve the economic livelihood of the ranchers, while reducing potential eagle impacts. The objective of this

research is to identify quality habitat areas that meet specific conditions to relocate eagles and then understand how habitat and distance from trap sites effect spatial patterns once released. We are sampling vegetation, prey abundance, human disturbance, and eagle nest densities at randomly selected, spatially balanced sample sites to identify appropriate habitat and to aid in release site selection. We are trapping 12 eagles per year and fitting them with cellular GPS transmitters that will provide insight into their movement patterns and habitat preference after relocation. Eagles will be relocated at distance intervals, ranging from 100-400 miles. We will then identify movement patterns over time, so we can determine if the eagles return to the depredation area or stay at the relocation site. Hoping to find resources that keep eagles on the relocation site, we will model resource selection using Akaike's Information Criterion to determine habitat preference. The management application for this project is to identify best practices for eagle relocation to reduce persecution as well as gain further insight into their spatial ecology. This project will help facilitate a long-term cooperative effort between falconers, biologists, and ranchers.

1:45 to 2:00 – Questions for Presenters

Nate Bickford (CCTWS Chapter President)

Awards

2:00 to 2:05 – Student Awards

Nick Kaczor (Student Awards Committee Chair)

2:05 to 2:10 - Small Grant Research Award

Emily Latta (Small Grants and Travel Grants Committee Chair)

2:10 to 2:15 - Photo Contest

Marcella Tarantino (CCTWS Board Member)

2:15 to 2:20 - Closing Remarks

Nate Jones (CCTWS Chapter President-Elect)