LAMAR 2024

COLORADO FIELD ORNITHOLOGISTS CONVENTION

CFO Annual Convention
Lamar, Colorado
May 2-5, 2024

Science Session Abstracts

Revised 22 April 2024

Science Session Schedule

May 4, 2024, Empire Room, The Historic Cow Palace

1:00 pm Short Talks

Sarah Albright, Colorado State University. *Occupancy, abundance, and productivity of Burrowing Owls nesting in eastern Colorado.*

Emily Macklin, South Dakota State University. *Impacts of woodland treatment and colony site selection of Pinyon Jays in Colorado.*

Caleb Park, Western Colorado University. *Investigating environmental drivers of Brewer's Sparrow Density in the Gunnison Basin: A spatiotemporal analysis of habitat characteristics.*

Chris Walker, University of Northern Colorado. *Changing colors: Using different color-measuring tools for avian coloration analysis.*

Philip McNichols, CFO Conservation Committee Chair. *Conservation Efforts for CFO including Pinyon Jays and the Conejos River Restoration Project.*

2:40 pm Break

2:50 pm Workshops

David Leatherman. *Impaled Prey of the Loggerhead Shrike in Southeastern Colorado*.

Chuck Hundertmark, CFO President. *From Next Door to the Texas Gulf Coast, Finding the Best Spots to Bird*.

Abstracts

Sarah Albright; Colorado State University

Co-Authors: William Kendall, USGS Colorado Cooperative Fish and Wildlife Unit; Reesa Conrey, Colorado Parks and Wildlife

Title: Occupancy, abundance, and productivity of Burrowing Owls nesting in eastern Colorado

Abstract: Burrowing Owl (*Athene cunicularia*) populations have been declining in regions across the Great Plains due to nesting habitat loss, degradation, and fragmentation. This decline has been closely linked to declines in black-tailed prairie dogs (*Cynomys ludovicianus*), which provide important nesting habitat for Burrowing Owls and other grassland birds. We examine the effect of black-tailed prairie dog colony attributes on burrowing owl occupancy and abundance. We specifically look at how colony size, activity status, and vegetation characteristics influence these population parameters on 175 survey plots throughout eastern Colorado across two sample years. Results are based on multistate occupancy and distance sampling data collected by paired observers traversing transects through study plots, during the 2022 and 2023 Burrowing Owl nesting seasons (May-August). Our top multistate occupancy model indicates that prairie dog colony activity level and latitude have significant effects on occupancy probabilities. Prairie dog activity level has a strong positive effect on the probability that a plot is occupied with successful reproduction. Occupancy was higher in southern CO compared to northern CO. Abundance and density estimates are calculated using distance sampling methods. This two-year study will provide an updated state status assessment of Burrowing Owl populations across the black-tailed prairie dog range in Colorado that will help calibrate Burrowing Owl population models incorporating prairie dog colony characteristics and inform future monitoring plans.

Emily Macklin; South Dakota State University

Co-Authors: Amanda E. Cheeseman, South Dakota State University; David McNitt, Bureau of Land Management; Amy Seglund, Colorado Parks and Wildlife; Scott Somershoe, U.S. Fish and Wildlife Service

Title: Impacts of woodland treatment and colony site selection of Pinyon Jays in Colorado

Abstract: As the diverse landscape of the Intermountain West evolves with climate change impacts, land conversion, and habitat loss, many wildlife species face novel environmental conditions that may impact their fitness and use of resources. One such species of conservation interest is the Pinyon Jay (*Gymnorhinus cyanocephalus*), a highly social corvid endemic to the interior western United States. Pinyon Jay populations have experienced significant population declines over the last 50 years, resulting in their consideration for listing on the Endangered Species Act (ESA) and the elevation of their conservation status as a species of concern across multiple government agencies and organizations. Pinyon jays inhabit piñon-juniper and other dry conifer woodlands that are routinely treated for numerous management objectives, including wildfire mitigation through fuels reduction, forest health restoration, and habitat improvement for other species. The silvicultural methods and scale of treatment projects vary throughout the Pinyon Jay range, and regionally focused research is needed to understand the immediate and long-term impacts of woodland treatments on Pinyon Jay populations. We are currently evaluating the influence of woodland composition and scale on Pinyon Jay nesting site suitability across Colorado, as well as the impact of silvicultural prescriptions on relative superpopulation abundance and habitat use of Pinyon Jays during the breeding season. The results of this study will inform sustainable land management practices and provide guidance for future research efforts in Colorado to mitigate negative impacts on breeding Pinyon Jays and aid in vital recovery efforts for this imperiled species.

Caleb Park; Western Colorado University

Title: Investigating environmental drivers of Brewer's Sparrow Density in the Gunnison Basin: A spatiotemporal analysis of habitat characteristics

Abstract: The Brewer's Sparrow (*Spizella breweri*), a sagebrush obligate bird, faces increasing threats due to habitat degradation. Given these persistent threats, it is crucial to understand relationships between the landscape and the animals that rely on it. This study aims to combine bird point count data with remotely sensed and field collected vegetative, topographic, and climatic covariates to determine the factors that most affect the species' distribution and quantify the relationship between spatial and temporal variables and Brewer's Sparrow abundance across the sagebrush ecosystem of the Gunnison Basin. To achieve this, I am conducting breeding season bird point counts, following the IMBCR protocol, from 2022 to 2024. Additionally, I am using previously collected data from 2018 to 2021 to assess the abundance and distribution of Brewer's sparrows across the Gunnison Basin over the six-year period. Remotely sensed vegetation and topographic data, including LiDAR, DEM, and high-resolution (0.5m) imagery of the Gunnison Basin collected in 2022, are being utilized to compare these spatial covariates with the distribution patterns of the Brewer's sparrow within the sagebrush steppe. Currently, remotely sensed vegetative data is still being acquired, while the 2024 bird point count data collection is scheduled to begin towards the end of May. Preliminary analysis of Brewer's Sparrow population numbers suggests similarities in fluctuations among distinct local populations (at the grid scale). Researching this complex relationship between the Brewer's Sparrow and its habitat will provide valuable insights for land managers, enabling them to implement more effective and beneficial management strategies for these species.

Chris Walker; University of Northern Colorado

Co-Authors: Lauryn Benedict, University of Northern Colorado; Jan Chaloupka, University of Northern Colorado

Title: Changing colors: Using different color-measuring tools for avian coloration analysis

Abstract: Vibrantly colored birds of many hues can be found at every turn. Plumage colorations can be impacted by variables such as sexual selection, social signaling, and diet. An example of a diet-based pigment found in feathers are carotenoids, which provide warm hues including reds and oranges. Eating a carotenoid-rich diet can provide brighter colorations to birds with better access to resources or different resource types. These bright carotenoid-colored feathers can provide an evolutionary advantage for these birds; sexual competitions or dominance hierarchies outcomes can be determined through these colorations. Red-winged Blackbirds (*Agelaius phoeniceus*) are known for their red-orange epaulets. These are specifically used to signal dominance, health, and desirability by potential mates. Much research has been done on males, but females have historically been left out of analyses on coloration. In this study, I used photography and spectrometry techniques to compare male and female Red-winged Blackbird epaulet coloration. These two techniques have different advantages and disadvantages, including monetary cost, amount of data collection (pinpoint data versus whole area data), application access, and more. The goal of this research is to analyze the differences in the results from each testing type; this will have implications for how these tools should be used in a field study. If they yield similar results, the preferential tool can be utilized in future studies. If they yield different results, we will analyze what may be causing these differences so that we can trust our tools to be reliable in future studies of wild birds.

Philip McNichols, CFO Conservation Committee Chair

Title: CFO Conservation efforts including Pinyon Jays and the Conejos River Restoration Project

Abstract: CFO conservation efforts increased in the past year with involvement in several projects and engagement with other like-minded organizations. Community outreach and engagement included supporting bird species, habitats, legislation, and pollinators. As Roger Tory Peterson said, “birds are the litmus paper of our society” and at CFO we will continue to play our part.
Adding to the prior presentation by Emily Macklin, CFO’s very successful involvement in the ongoing Pinyon Jay Community Science Project will be discussed.
Our newest project, the Conejos River Restoration Project, will also be introduced. The focus of this work is enhancing the river and the surrounding riparian area. Special focus is on the Southwestern Willow Flycatcher and the Western Yellow-billed Cuckoo.

Philip McNichols is also a member of the CPW Wildlife and Habitat Roundtable, Partners in the Outdoors, and on the conservation committee of Boulder County Nature Association

David Leatherman

Title: Impaled Prey of the Loggerhead Shrike in Southeastern Colorado

Description: The Loggerhead Shrike (*Lanius ludovicianus*), the only breeding predatory songbird in Colorado, is known for its habit of impaling prey on thorns, in branch crotches, and on barbed wire. Its documented reasons for impaling are holding/storing prey and mate recruitment. This workshop will illustrate via photographs taken over the last few decades the varied diet of loggerhead shrikes in

southeastern Colorado as evidenced by impaled prey. Some of these items are surprising, some break federal law. We will also discuss other unproven reasons for impaling such as messaging to other birds.

David Leatherman is a former entomologist with Colorado State Forest Service, a former CFO Journal Editor, and author of the *Colorado Birds* column titled “The Hungry Bird.”

Chuck Hundertmark; CFO President

Title: From Next Door to the Texas Gulf Coast, Finding the Best Spots to Bird

Description: Since the 1950s, birders have used bird-finding guides to help plan their birding trips. With the emergence of eBird, many birders have started using that application to find popular “hotspots”. But the eBird hotspot maps don’t provide directions to each hotspot. Now there’s a new website that provides directions and more information about every eBird hotspot in 38 states and more.

In this workshop, we’ll walk through the ways birdinghotspots.org can help you plan your birding trips in Colorado, most other states, and in a growing number of other countries. We’ll explore the ways the website links directly to eBird. The website can also be accessed through CFO’s County Birding pages. Finally, we’ll explore how all of us can help grow and improve the website providing us new challenges and helping other birders.