

THE BUFF-BREASTED FLYCATCHER RETURNS TO NEW MEXICO

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An enduring mystery as regards New Mexico ornithology concerns the disappearance of the Buff-breasted Flycatcher (*Empidonax fulvifrons*) from the state. Historically widespread in the state's southwestern mountains north to the Zuni area and—judging by the number of records—apparently fairly common from the 1870s through the 1920s, the species went undocumented from 1929 (a specimen from near Reserve in the Mogollon Mountains) until 1995 (a photograph from Clanton Canyon, Peloncillo Mountains), a period of some 66 years. Following 1995, singles were found in the Peloncillo Mountains irregularly in Clanton Canyon and occasionally in Skeleton Canyon but without evidence of breeding. In May 1999, one was documented in the Animas Mountains, but subsequent surveys there were negative until, following a wildfire in 2006, one was photographed in 2007 and a nest was found in 2008; the summering population there has since grown in numbers and distribution, with multiple nests in some years. The species made a significant leap north in 2016, with one in the Burro Mountains, Grant Co., that year and at least one active nest there in 2017 and most subsequent years. More recently, in 2021 one was north to the Woodland Park area of the Gila Wilderness, Catron Co. In Arizona, a similar pattern has been seen, with range contraction after the 1920s and subsequent gradual repopulation of historic range. Possible factors driving these changes will be discussed.

NATURAL HISTORY AND REINTRODUCTION OF WHITE-TAILED PTARMIGAN IN NEW MEXICO

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White-tailed Ptarmigan (*Lagopus leucura*; hereafter ptarmigan) are an alpine-obligate grouse endemic to North America. New Mexico represents the southern extent of their range, where they are listed as state endangered. Ptarmigan are highly adapted to the extreme climatic conditions associated with alpine ecosystems. However, climate change is rapidly altering these ecosystems, potentially putting ptarmigan at risk of local extirpation. Small ptarmigan populations persisted across the northern mountain ranges of New Mexico until at least the late 20th century. In 1981, the New Mexico Department of and Fish (NMDGF) translocated 43 individuals from Colorado to the Pecos Wilderness Area in the Carson National Forest. By the late 2010s, this and other ptarmigan populations in New Mexico were functionally extinct. To better understand factors influencing ptarmigan demography and persistence in New Mexico, NMDGF recently initiated efforts to re-establish a population in the Pecos Wilderness Area, intending ultimately to translocate approximately 40 adult birds from Colorado. In 2021, spring capture efforts were unsuccessful due to adverse weather conditions, whereas 9 males and 15 females (n = 24) marked with VHF-necklaces were successfully captured and released in September. Here we will report on the current status of the reintroduced population and discuss planned research questions related to survival, habitat and nest-site selection, and foraging ecology in the context of New Mexico's changing climate.

SHEDDING “LIGHT” ON MIGRATION MORTALITIES: NEW RESEARCH UNDERWAY AT NMSU

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Migration has evolved in thousands of bird species as a strategy to maximize fecundity. Physiologically, avian migration is extremely demanding. Furthermore, during migration birds are exposed to a variety of novel stressors that may amplify the physiological demands and increase vulnerability to mortality. Artificial light at night (ALAN) may interfere with the celestial cues that birds rely on to inform geomagnetic navigation during migration. In recent years, multiple large-scale avian mortality events occurring during migration are hypothesized to be linked to the disorientation of migrating birds by ALAN, including an event that occurred in southern New Mexico during fall migration of 2020. Using acoustic analysis of migrating birds and next generation weather radar (NEXRAD) data, we will be examining the potential impact of ALAN on birds migrating across the White Sands Missile Range (WSMR). While several studies have examined the impacts of large-scale ALAN (at the scale of entire cities) on avian migration, few have examined the effects of localized point-sources of ALAN on migrating birds. At this fine scale, we will be able to examine differences between lighting strategies and lighting types in terms of the impact on migrating birds. With many point-sources of ALAN spread across an otherwise dark environment, WSMR is an ideal location for this study. Findings from this research will serve to inform management decisions in terms of lighting implementation (i.e., recommendations for more “bird friendly” lighting strategies), and guidance for targeted “lights out” campaigns on WSMR and across the region.

COMPARATIVE NESTING HABITAT AND NEST SURVIVAL OF AVIAN COMMUNITIES IN THINNED AND UNTHINNED PINYON-JUNIPER WOODLANDS

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Pinyon-juniper woodlands are among the most diverse and widespread ecosystems in the western United States and provide habitat for a rich diversity of avian species. As the most common forest-type in the state of New Mexico, these semi-arid woodlands provide food and cover for a wide range of wildlife throughout the year. More than a century of livestock grazing and fire suppression, among other factors, has resulted in the expansion of pinyon-juniper woodlands into arid and semi-arid grasslands across the Southwest. On the Fort Stanton-Snowy River National Conservation Area (NCA) in Lincoln County, New Mexico, land managers are using mechanical thinning and prescribed fire to reduce fuel loads, increase forage availability for game species, provide ideal conditions for endangered flora in the region, and return pinyon-juniper woodlands to historic distributions and structure. However, the high proportion of avian pinyon-juniper specialists listed on national and state species of concern lists has urged the Bureau of Land Management to seek more insight on the effects of these prescriptions so that thinning targets may be updated with avian conservation in mind. Our investigation centers around how these varying forest management practices influence nest-site selection, nest survival, and productivity for the breeding bird communities. Since 2019, we have found, monitored, and documented over 700 nesting attempts of 30+ species within approximately 1,000 hectares of the Fort Stanton NCA. Data analyses are ongoing, but our results will provide valuable insight into population trends of pinyon-juniper birds in south-central New Mexico and provide pertinent feedback for land managers striving to provide high-quality nesting habitat while also considering other needs. Preliminary results from our research have yielded nest survival rates and basic habitat associations with nest-sites for multiple pinyon-juniper obligate and semi-obligate bird species.

HABITAT: RETHINKING AN IMPORTANT CONCEPT

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The term habitat is one of the most common terms heard or read in reference to wildlife and plant species research and management. It is also one of the most commonly misused terms. This presentation will delve into the origins and definition(s) of the term habitat, and will illustrate the myriad ways that the term is misused and the confusion this can cause. It will also highlight the link between the use/misuse of the term and paradigms that direct current research and management.

CLIMATE CHANGE IN THE SOUTHWEST: RECENT RESPONSES AND FUTURE IMPACTS FOR BIRD POPULATIONS

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Over the last few decades bird species have showed a variety of responses to climate changes and related changes in habitat, disturbance regimes, and resource availability. Birds have been referred to as a “canary in the coal mines” in regards to foretelling climate change impacts for ecological communities. Changes in habitat availability, altered community interactions, and shifts in the timing of important resources affect both resident and migrant species. In turn, these changes can drive the collapse of entire communities; a phenomenon that may already be realized with recent declines in bird species richness across the globe. Within the Southwest, hotter conditions combined with changing hydrological cycles are likely to change the availability of many important resources leading to the loss of some species and the establishment of others. Current research indicates that individual responses to climate change are a function of species’ physiology, ecology, and adaptive capacity. The degree to which climate change alters bird communities will depend upon the individual capacities of constitute species and the characteristics of the habitats in which these communities reside.