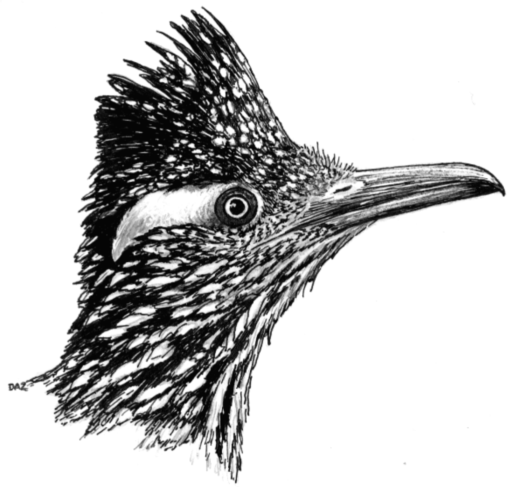
NMOS BULLETIN



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Announcements and Information

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DISTRIBUTION AND HABITAT USE OF THE MEXICAN WHIP-POOR-WILL IN SOUTHWEST NEW MEXICO

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Abstract–Surveys for Mexican Whip-poor-will (*Antrostomus arizonae*) were conducted in May and June 2015 across the Gila region of New Mexico. Believed to be experiencing a population decline, this nocturnal species is not easily monitored by existing long-term survey efforts; therefore, little baseline information exists. This targeted study was implemented to better understand status, distribution, and habitat preferences of Mexican Whip-poor-wills in the forested mountains of southwest New Mexico. Of the 155 point count locations surveyed in 2015, a total of 38 individual Mexican Whip-poor-wills were detected at 31 locations. Mexican Whip-poor-wills were widespread throughout the Gila region and predictably found according to habitat characteristics, with 87% found in mesic canyons and 79% near surface water.

The Mexican Whip-poor-will (*Antrostomus arizonae*) is a migratory nightjar, breeding across the southwestern United States and wintering from Mexico to northern Central America. In 2010 it was taxonomically split from the Eastern Whip-poor-will (*Antrostomus vociferous*) (AOU 2010). It is widely understood that the nightjar family (*Caprimulgidae*) is experiencing population declines (Sauer et al. 2014), believed to be largely due to loss of forested habitat and change of vegetative structure (Reese 1996). The Mexican Whip-poor-will was placed on the 2016 State of the Birds Watch List (NABCI 2016), identifying it as a species of high conservation concern and at risk of extinction if conservation action is not taken. A major contributing factor for this conservation concern is their small and restricted range in the United States. Southwest New Mexico and particularly the Gila region, holds a vast area of potential breeding habitat for the Mexican Whip-poor-will and may serve as a stronghold for their persistence.

The Center for Conservation Biology developed the volunteer-based Nightjar Survey Network in order to track the status of nightjars across the country; however, very few routes in southwest New Mexico are regularly surveyed (Nightjar Survey Network 2012). The males' repetitive calling on moonlit nights enables easy identification of this cryptic species. Additionally, their high detectability rate of 96% means they can be easily surveyed by point count survey techniques (Nightjar Survey Network 2012). Through a research grant from the New Mexico Ornithological Society, I initiated an additional survey effort to better understand status and distribution of the Mexican Whip-poor-will throughout the Gila region, while adding to the natural history knowledge of this species' habitat preferences specific to this area.

METHODS

This study focused on the Gila region of southwestern New Mexico, defined by the Gallo Mountains to the north, Black Range to the east, Burro Mountains to the south and San Francisco Mountains to the west (Figure 1). This large area is characterized by rugged mountains and canyons, ranging in elevations of 1,300 to nearly 3,350 meters. It includes Wilderness Areas, land administered by the U.S. Forest Service and Bureau of Land Management (BLM), as well as scattered, smaller portions of private land. Survey efforts were spread as evenly as possible across the majority of mountain ranges within the Gila region. No randomization was used when selecting routes; instead, as many kilometers of roads as possible were surveyed in potential breeding habitat for the species. Potential habitat was considered mid-elevation mesic canyons and densely wooded, mixed coniferous and deciduous forests (D. Krueper, personal communication, Marshall 1957, Ligon 1961).

A mixture of roadside routes and single-point backcountry sites was surveyed. Roadside routes followed the protocol of the Nightjar Survey Network (Nightjar Survey Network 2012), with ten six-minute point count stops, each separated by approximately 1.6 km. Backcountry points were surveyed at least 30 minutes at a single location; however, by camping at some sites nightjars were able to be heard throughout the night. Habitat descriptions were recorded during each survey including vegetation composition, elevation, and presence of water if known. Habitat type at each point count location was categorized into six broad habitat types: mesic canyons, piñon-juniper woodland, piñon-juniper/oak woodland, ponderosa pine forest, mixed coniferous forest, and montane riparian (Table 1). Additionally, distances to drainages were verified using GIS and Google Earth. Surveys were conducted entirely auditorily, listening for spontaneous song, with no spotlighting or play call-back included.

Because nightjars are most active on bright, moonlit nights, surveys were conducted during specified lunar windows, approximately 10 days when the moon is at its brightest phase during the month. Additionally, the protocol required that the moon was visible over the horizon and not continuously obscured by cloud cover. Surveys began 30 minutes after sunset and ended no later than 15 minutes before sunrise.

RESULTS

During May and June 2015, 15 roadside surveys and six remote surveys were completed (Figure 1), totaling 155 point count locations. Fifty-six point count locations were located in mesic canyons, forty-four in ponderosa pine forest, twenty-two in piñon-juniper/oak woodland, twenty in piñon–juniper woodland, nine in mixed coniferous forest, and four in montane riparian habitats. Of the 155 point count locations, 31 had detections, several with multiple individuals. A total of 38 individual Mexican Whip-poor-wills were detected (Table 2).

Survey locations ranged from 1,463 to 2,804 meters in elevation, and Mexican Whip-poor-wills were detected from 1,463 to 2,473 meters. Birds were detected in four habitat types: mesic canyon habitat comprised 87% of detections (33 individuals); 8% were in piñon–juniper and oak woodland (three individuals); and 2.5% each in piñon–juniper woodland (one individual) and montane riparian (one individual) (Table 2). No birds were detected in ponderosa pine or mixed coniferous forest. It was estimated that 79% of detection locations had surface water close to where the bird was heard, while 10.5% were in areas that were dry at the time but sometimes held water (intermittent drainages). Another 10.5% of detections were in locations where water sources or mesic drainages were greater than 500 meters away.

DISCUSSION

Distribution and Habitat Preferences

Mexican Whip-poor-wills were widespread throughout the Gila region and predictably found according to habitat characteristics. Most important were mesic canyons, since 84% of all detections fell within this category. Areas were classified as mesic canyon when drainages contained enough moisture to support at least a small amount of riparian vegetation, and had steep-sided slopes or rocky canyon walls. Though there was variation within this habitat type, the best examples had a mixture of tall, mature ponderosa pine (*Pinus scopulorum*), various oak species (*Quercus* spp.), narrow leaf cottonwood (*Populus angustifolia*), Arizona walnut (*Juglans major*), Arizona alder (*Alnus oblongifolia*), and other deciduous trees within the canyon bottom, with more arid hillsides of shorter piñon–juniper and oak woodlands. Vegetation structure was highly varied, with patches of moderate to dense under, mid, and overstory layers.

Due to the rugged landscape of the Gila, very few roads are found within these mesic canyons; the most representative example being Cherry Creek, which also had the most Mexican Whip-poor-will detections. The first six point count locations along this roadside route occurred in the bottom of a steep-sided canyon hosting an array of deciduous and coniferous trees, paralleling an intermittent stream with several hillside springs. Seven individuals were detected in the first six point count locations. Approaching the seventh point count, the road climbs out of steep-sided mesic canyon habitat into more gently rolling ponderosa pine forested hills; no additional whip-poor-wills were detected from the remaining four stations. These points fell in more homogenous vegetation structure with less plant diversity: even-aged ponderosa pine forest and scattered oaks with a sparse or absent lower and mid-canopy layer.

Within the arid environment of the southwestern US, mesic drainages such as Cherry Creek are often diversity hotspots that host a rich concentration of plant and insect life, and consequently abundant avian life when compared to surrounding areas (Krueper et al. 2003, Bock and Bock 2005, Zwartjes et al. 2005). What specific characteristics of this landscape Mexican Whip-poor-wills require for breeding habitat is not fully understood, but it is likely a combination of conditions created by the presence of relatively greater moisture and humidity. Areas with mature, tall trees are preferred (Marshall 1957), while the thick and varied canopy heights may allow both concealment and flight corridors while foraging from perches. Thick understory vegetation cover bolsters insect prey base, while also providing roost site and nest concealment (Zwartjes et al. 2005).

The Mexican Whip-poor-will range in New Mexico includes most of the southern and central mountain ranges such as the Sacramento, Magdalena, and Guadalupe Mountains (Parmeter 2002). They also appear to be expanding northward within New Mexico, having been documented in the northern mountains of the Jemez, Sangre de Cristo, and Zuni ranges (Williams 2010). Based on eBird data (www.ebird.org), there are fewer records in these northern mountains, but locations where they have been found suggest they are selecting a similar habitat type to the mesic canyons of the Gila region. While the Mexican Whip-poor-will appears to be well distributed throughout the Gila region, it would be worthwhile to better understand distribution and habitat preferences in other portions of the state, particularly the northern mountain ranges.

A broad range of habitat associations are given for the Mexican Whip-poor-will in existing literature and thus, keying in on a specific habitat association may be the most useful result of this study. In the 2010 revision of the species, the AOU cited "pine and pine–oak forest" as the preferred habitat (AOU 2010), while the New Mexico Conservation Plan (2007) identifies ponderosa pine as the primary breeding habitat, followed by mixed conifer forest and Madrean pine–oak woodland. Howell and Webb (1995) touch on the moisture factor identifying humid to semi-arid pine and pine–oak. Most compatible with this study, Marshall (1957) discusses the importance of mesic canyons, stating "tall riparian timber attracts the species down canyon bottoms through encinal." While these descriptions are all associated (and may have overlap), omitting the mesic characteristic leaves room for error when interpreting preferred breeding habitat; therefore, this information would aid when identifying and addressing specific conservation issues. Given the predictability of detections within this habitat type, at least in the Gila region, "mixed pine–oak mesic canyons of the southwest" is a more precise description of Mexican Whip-poor-will preferred breeding habitat.

Threats of Habitat Loss

As a forest-dwelling species, Mexican Whip-poor-wills are undoubtedly impacted by wildfire in southwest New Mexico. Approximately 1.8 million acres of the Gila National Forest have been impacted by fire in the last 10 years, and the trend for large-scale fires of over 100,000 acres is increasing (Region 3 Geospatial Data, www.fs.usda.gov). For this region, habitat loss due to wildfire may be this species' most significant threat.

Fortunately, there were several locations where Mexican Whip-poor-wills were detected near recent wildfires–near Gila Cliff Dwellings, Emory Pass, and Black Canyon. These wildfires all occurred within the last five years and exhibited a similar pattern, containing patches of unburned habitat and robust vegetation regrowth, especially near the canyon bottoms within riparian habitat. An illustrative example of a patchy burned area was at the Gila Cliff Dwellings parking lot, where one Mexican Whip-poor-will was detected. At this location, the steep hillsides on either side of the canyon are heavily burned, but the riparian corridor along the West Fork Gila River is largely intact. Managing wildfires to avoid or limit burning riparian canyon bottoms, as well as maintaining a mixed forest structure would seemingly help safeguard this species' breeding habitat.

While large-scale fires may pose a significant threat to whip-poor-will breeding habitat, it has been found that Eastern Whip-poor-wills may benefit from patches of open canopy (Mills 1986, Wilson and Watts 2008, Akresh and King 2016). In a study on the effects of forest management practices on Eastern Whip-poor-wills, Wilson and Watts (2008) found a greater abundance of birds near forest edges, likely because they offered preferred foraging habitat. While this information is specific to more closed-canopy forests in the eastern US, it is notable that mesic canyons often exhibit a varied canopy structure to begin with, including forest edges at the transition of canyon bottom to arid hillsides.

An effort to maintain the dense and mixed forest structure within mesic canyons is an important consideration for conservation of the Mexican Whip-poor-will. Additionally, survey and monitoring in other regions of the state would greatly enhance our understanding of this species' status in New Mexico.

Table 1. Habitat types surveyed for Mexican Whip-poor-will, 2015

Habitat Type	General Characteristics
Mesic Canyon	Drainages carrying enough moisture to support some amount of riparian vegetation, mixed coniferous trees and deciduous trees, steep-sided slopes or canyon walls. Hillsides are most commonly arid piñon-juniper or piñon-juniper/oak woodland
Ponderosa Pine Forest	Continuous ponderosa pine overstory, sometimes with scattered oak or piñon-juniper in midstory layer. Often has grassy understory and occasional meadows
Piñon-juniper/Oak Woodland	Piñon-juniper with large oak component, often with mixed shrubs in understory
Piñon-Juniper Woodland	Drier piñon-juniper woodland with minimal understory
Mixed Coniferous Forest	Higher elevation forest of mixed coniferous species, such as spruce, firs, pines
Montane Riparian	Higher elevation forest of mixed coniferous and aspen trees, mesic valleys and moist meadows hosting riparian vegetation

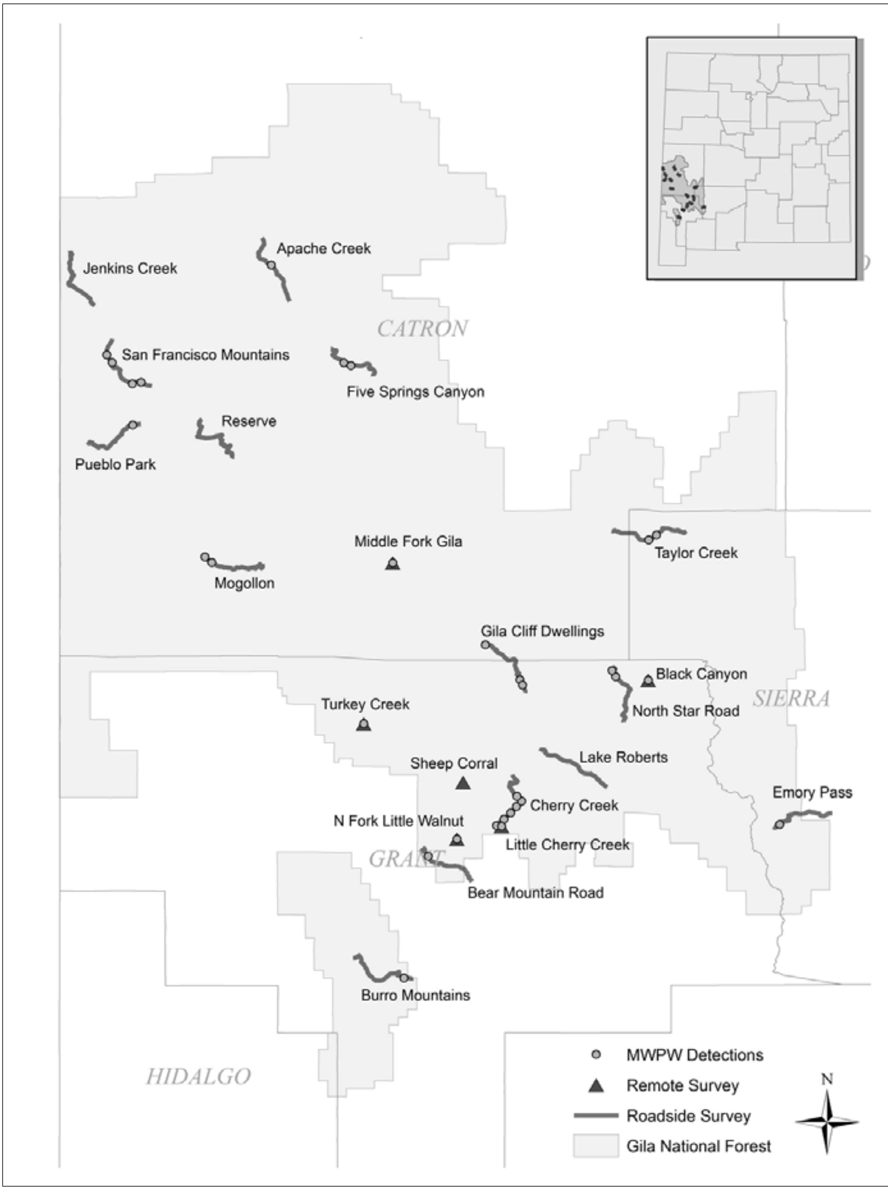

Figure 1. Mexican Whip-poor-will survey locations in the Gila region of New Mexico, 2015

Table 2. Mexican Whip-poor-will (MWPW) detections and habitat characteristics, 2015

Survey Location	Survey Type	# MWPW Detected	Elevation (m)	Habitat Characteristics	Water Presence in Area
Apache Creek 5	Road	1	2,069	Mesic canyon with dense coniferous and deciduous tree species	Perennial stream
Bear Mountain Road 3	Road	1	2,056	Mesic canyon with piñon–juniper and oak woodland, scattered ponderosa pine. Heard far below towards drainage	**Intermittent stream–** (unknown if water was present at time, likely dry)
Black Canyon	Remote	4	2,199	Mesic canyon with ponderosa pine, oak and cottonwoods. Open grassy areas in canyon bottom	Perennial stream
Burro Mountains 9	Road	1	1,990	Mesic canyon with piñon–juniper and oak woodland, scattered ponderosa pine and few deciduous trees	Intermittent stream–(dry at time)
Cherry Creek 1	Road	1	2,049	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs
Cherry Creek 2	Road	2	2,063	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs
Cherry Creek 3	Road	1	2,101	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs
Cherry Creek 4	Road	1	2,171	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs
Cherry Creek 5	Road	1	2,266	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs

Survey Location	Survey Type	# MWPW Detected	Elevation (m)	Habitat Characteristics	Water Presence in Area
Cherry Creek 6	Road	1	2,272	Mesic canyon with diverse and varied vegetation structures	Intermittent stream & springs
Emory Pass 9	Road	1	1,646	Mesic canyon. Piñon–juniper and oak woodland, various shrubs and scattered ponderosa pine at survey point. Heard far below in mesic drainage	Intermittent stream
Five Springs Canyon 4	Road	1	2,419	Mesic canyon with ponderosa pine and oak woodland	**Intermittent stream**–(dry at time)
Five Springs Canyon 5	Road	1	2,473	Montane riparian with mixed coniferous, oak and aspen	**Intermittent stream**–(dry at time)
Gila Cliff Dwellings 1	Road	1	1,769	Mesic canyon with dense riparian vegetation	Perennial stream
Gila Cliff Dwellings 8	Road	1	1,877	Piñon–juniper woodland, scattered ponderosa pine. Heard far downslope in mesic drainage	Perennial and Intermittent stream
Gila Cliff Dwellings 9	Road	1	1,877	Piñon–juniper woodland ridgetop. Heard on ridgetop	**Not nearby**. Intermittent stream >600m away
Little Cherry Creek	Remote	2	2,018	Mesic canyon with diverse and varied vegetation structure	Perennial stream
Middle Fork Gila	Remote	1	2,288	Mesic canyon with ponderosa pine and oak hillsides	Perennial stream

Survey Location	Survey Type	# MWPW Detected	Elevation (m)	Habitat Characteristics	Water Presence in Area
Mogollon 1	Road	2	2,065	Mesic canyon with ponderosa pine and oak woodlands	Perennial stream
Mogollon 2	Road	1	2,191	Mesic canyon with mixed coniferous, oak, and deciduous species	Perennial stream
North Fork Little Walnut	Remote	1	1,937	Mesic canyon with ponderosa pine and oak woodland, mixed shrubs	Intermittent stream
North Star Road 8	Road	1	2,065	Mesic canyon with ponderosa pine, juniper and mixed oak and shrub hillsides	Perennial stream
North Star Road 9	Road	1	2,191	Mesic canyon with piñon–juniper and oak woodland with scattered ponderosa pine	Perennial stream
Pueblo Park 9	Road	1	1,873	Shallow mesic canyon with ponderosa pine and scattered cottonwoods in drainage.	Intermittent stream
San Francisco Mountains 2	Road	1	2,134	Mesic canyon with diverse and varied vegetation structures	Intermittent stream
San Francisco Mountains 3	Road	1	2,206	Mesic canyon with diverse and varied vegetation structures	Intermittent stream
San Francisco Mountains 7	Road	1	2,351	Mesic canyon with diverse and varied vegetation structures	Intermittent stream

Survey Location	Survey Type	# MWPW Detected	Elevation (m)	Habitat Characteristics	Water Presence in Area
San Francisco Mountains 8	Road	1	2,251	Mesic canyon with diverse and varied vegetation structures	Intermittent stream
Taylor Peak 5	Road	1	2,398	Piñon-juniper and oak woodland with scattered ponderosa pine and shrubs	**Not nearby**. Intermittent to Ephemeral stream >600m away
Taylor Peak 6	Road	2	2,348	Piñon-juniper and oak woodland with scattered ponderosa pine and shrubs	**Not nearby.** Intermittent to Ephemeral stream >800m away
Turkey Creek	Remote	1	1,463	Mesic canyon with diverse and varied vegetation structures	Perennial stream

*Items in **bold** denote dry stream at time of survey or water source far from area. All others had surface water in vicinity.

ACKNOWLEDGEMENTS

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ABSTRACTS FROM THE NMOS 55th ANNUAL MEETING

The following abstracts are from the papers presented April 22, 2017 at the 55th annual meeting of the New Mexico Ornithological Society held at New Mexico Highlands University in Las Vegas, New Mexico.

ORAL PRESENTATIONS

(In Order of Presentation; Presenters Underlined)

A Tale of Two Species: The Positive Feedbacks of Avian Seed Dispersal between Pinon Pine (*Pinus* Sp.) And Juniper (*Juniperus* Sp.) – W. Jaremko-Wright, New Mexico Highlands University, 1005 Diamond St, Las Vegas, NM 87701

Piñon-juniper woodlands and savannas make up a significant proportion of New Mexico's forested landscapes. Two of the primary species of this vegetation type; Two-needle Piñon (*Pinus edulis*) and One-seed Juniper (*Juniperus monosperma*), rely heavily on seed dispersal by avian vectors. Since European settlement of the southwest (1860), these species have experienced dramatic range and population increases. Beginning in 2001 however, populations of *P. edulis* have experienced dramatic die-off events across the southwest due to drought and associated bark beetle (*Ips* sp.) outbreaks. *J. monosperma*, in contrast, has experienced little to no die-off events during this time period. Frugivorous birds like thrushes (which disperse Junipers) and scatter-hording corvids (which disperse Piñons) select habitats based on availability of fruit, or nut-

producing trees. As tree populations decline, so too may the populations of their respective avian seed dispersers. The positive feedbacks that govern these population fluctuations may occur quickly, or may be non-linear, with distinct tipping points as a population of trees declines. Declines in *P. edulis* populations may set in motion feedbacks of decline between both the tree and Pinyon Jay (*Gymnorhinus cyanocephalus*) populations, while the opposite may be true for *J. monosperma* and associated seed dispersers. This presentation reviews some relevant literature about the state of Piñon-juniper vegetation dynamics in New Mexico, population trends of Pinyon Jays, Mountain Bluebirds, and other thrushes and the implications for both tree and bird populations under climate change scenarios and land management practices.

Experimental Hypobaria Alters Inter-Specific Competitive Dominance in Elevational Replacement Hummingbird Species – A.M. Gaffney, J.J. McCormick, C.M. Mermier and C.C. Witt. Department of Biology, Castetter Hall 1489, University of New Mexico, Albuquerque, NM 87131

If species differ in their tolerance of hypoxia, species interactions could change with elevation. Species distributions are predicted to shift upslope as climate warms, increasing exposure to hypobaric hypoxia, with unpredictable consequences for species interactions. Hummingbirds exhibit exceptional O_2 consumption rates which make them particularly susceptible to changes in the partial pressure of oxygen (PO_2). The lowland Black-chinned Hummingbird and montane Broad-tailed Hummingbird overlap at mid-elevations, ~2000-2500 m, in the southwestern United States. Black-chinned Hummingbirds tend to be competitively dominant over Broad-tailed Hummingbirds in contests for nectar resources. We captured adult males of both species from the zone of overlap to test whether interspecific competitive dominance would be affected by air pressure. We used a hypobaric chamber to simulate elevations ranging from 1600 m to 4600 m. To measure competitive dominance, naïve adult males of each species were allowed to compete for perches of differing heights. To evaluate whether species differed in their physical responses to hypobaric hypoxia, we quantified activity levels as simulated elevation increased within the hypobaric chamber. Our tests confirmed the interspecific competitive dominance of Black-chinned Hummingbirds at simulated low elevations; but the direction of dominance flipped at simulated high elevations. The low-elevation species experienced a more severe reduction in activity under hypobaria, suggesting hypoxia-induced respiratory stress. These results indicate that differential genetic adaptation to atmospheric pressure and its consequences for interspecific interference competition contribute to the maintenance of the elevational distribution limits. This suggests that warming will not shift distribution limits upslope.

Elevational Migration and Genetic Divergence in Elevational Generalist Songbird Species on the West Slope of the Peruvian Andes – C.R. Gadek, E.J. Beckman, A.C. Chavez. S.D. Newsome, and C.C. Witt, Department of Biology, Castetter Hall 1489, University of New Mexico, Albuquerque, NM 87131 and C.G. Galen, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Tropical bird species tend to have narrow elevational distributions, reflecting climatic specialization, but a few are distributed continuously across broad elevational gradients. Exposure to different altitudes exerts diversifying selection due to PO_2 and temperature differences; therefore, elevationally widespread species should be in the process of diversifying. Conversely, gene flow counteracts local adaptation, so species that migrate elevationally should be more resistant to diversifying selection. Here we tested for elevational movements by measuring stable hydrogen isotopes (δ^2H) in four elevational generalist species from the west slope of the Peruvian Andes. We used morphometric and mtDNA analyses to test for genetic differentiation between populations at high and low elevations. We found two different elevational patterns in stable isotope ratios (δ^2H): (1) decline in δ^2H with elevation in two species that we hypothesized to be sedentary (House Wren and Rufous-collared Sparrow); and (2) no relationship with δ^2H in two species that we hypothesized to be migratory (*Cinereous* Conebill and Hooded Siskin). Morphometric analyses showed no differences between high and low populations for conebills, subtle differences for sparrows and wrens, and dramatic differences for siskins. mtDNA was undifferentiated between high and low populations in conebills and siskins, subtly differentiated in wrens, and dramatically differentiated in sparrows. Neither conebills nor siskins showed mitochondrial differentiation, consistent with the hypothesis that elevational movements hinder local adaptation. However, siskin populations demonstrated strong morphometric divergence despite elevational movements. In sum, elevational generalist species exhibit idiosyncratic ecological and genetic responses to elevation extremes.

Impacts of Solar Energy Development on Breeding Birds of the Nutt Grasslands, NM – D. Meliopoulos, and M.J. Desmond, Department. of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces, NM 88001 and D. Daniels, Department of Applied Statistics, New Mexico State University, Las Cruces, NM 88003

The Nutt grasslands of southcentral New Mexico are one of the important remaining tracts of desert grasslands. This research examines the effects of a recent solar development in this valuable and threatened ecosystem on grassland bird populations. Our objectives were to quantify avian abundance, community composition, and abundance of individual species at varying distances from the solar facility. The study design entailed 100, 50 m radius plots within the solar facility and at 4 distance categories from the facility. Each distance category had 20 randomly selected plots

spaced >200 m apart and from major roads, and >400 m from turbines on an adjacent wind farm. We used negative binomial regression analysis to examine avian abundance in relation to environmental noise levels, soil temperatures, insect abundance, vegetation cover and various edges. Daily nest survival of Mourning Dove (*Zenaida macroura*) nests and depredation rates were also evaluated using logistic-exposure models in Program MARK. Horned Larks (*Eremophila alpestris*) comprised 72% of all birds on the study site and 85% of the grassland bird guild. Overall, distance to solar facility did not impact grassland birds, but there was a significant interaction between distance to solar facility and year, indicating potential effects that were not detected in the first year, possibly due to the extreme dry conditions. Year and nest age influenced daily mourning dove nest survival more than distance to solar facility. We will discuss these results as well as recommendations for future research.

Distribution and Breeding Habitat Requirements of Bendire's Thrasher (*Toxostoma Bendirei*) Throughout Its New Mexico Range – C.T. Bear Sutton and M.J. Desmond, Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces, NM 88003 and M. Darr, Bird Program, Wildlife Management Division, N.M. Department of Game and Fish, Santa Fe, NM 87507

Bendire's Thrasher is an understudied and cryptic arid land obligate. Data from breeding bird surveys indicates that this species is experiencing among the greatest declines of any species in North America. It is estimated that 28.7% of the global population of Bendire's Thrasher occurs in New Mexico, where breeding bird surveys indicate a 4.4% annual decline in populations over the last 10 years, and a more recent analysis estimates the population will decline by 30% in the next 15 years and 50% within 20 years. The lack of knowledge about the Bendire's Thrasher, and the apparent population declines have led to an interest in increasing conservation efforts and basic ecological knowledge for this species. This research aims to answer some basic questions about Bendire's Thrasher in New Mexico while setting ground work for future conservation efforts. Our objectives were to determine the most effective way to survey for Bendire's Thrasher, improve the current understanding of Bendire's Thrasher distribution in the state of New Mexico, and describe the breeding territories of Bendire's Thrasher. We found 22 Bendire's Thrashers in 2015, mainly through the use of recorded song playback. Of the 22 Bendire's Thrashers we found, we mapped and completed vegetation surveys on 20 of their territories. We also completed 21 vegetation surveys on random points to compare with the vegetation on Bendire's Thrasher territories. Preliminary analysis of this data suggests Bendire's Thrashers select for breeding habitat with more tall shrubs and bare ground than random locations. We will present a preliminary data analyses from our first season of data collection.

Migratory Bird Treaty Centennial – K. Madden, Division of Migratory Birds, Southwest Region, U.S. Fish and Wildlife Service, Albuquerque, NM 87102

The first Migratory Bird Treaty was signed between the U.S. and Great Britain (for Canada) on August 16, 1916. This treaty and the three others that followed form the cornerstones of our efforts to conserve birds that migrate across international borders. These treaties connect the Service with our federal, state, tribal and non-government partners, both domestic and international, who share our long, successful history of conserving, protecting and managing migratory bird populations and their habitats. Kristin will review the history of migratory bird conservation in North America, provide an overview of a few current landscape level programs, and update attendees on Centennial celebrations in New Mexico.

Similar Unusual Plumaged Gulls Found In Widely Separated Locations in North America Including San Juan County, New Mexico – T. Reeves, 5101 Piñon Hills Blvd., Farmington, NM 87402

Possible Ring-billed Gulls with atypical plumage and resembling one another have been found, photographed, and reported as follows: December 17, 2011, San Juan County Landfill, NM, one individual observed one day by Tim Reeves, posted on eBird; October 28, 2012, central Saskatchewan, one individual observed one day by unnamed photographer, posted on BirdForum by Alaina Lee; November 27 or 28, 2012, Pueblo Reservoir, Pueblo, CO, observed one day by Brandon Percival, posted on BirdForum by Tony Leukering; January 28, 2015, San Juan Landfill, NM, one bird observed on eight dates ending February 28, San Juan County Landfill by Tim Reeves, posted on eBird; April 2, 2015, Susquehanna River near Harrisburg, PA, observed one day by Frank Haas, posted on BIRDWGO1; February 27 and March 7, 2016, San Juan County Landfill, NM, one bird observed on two dates by Tim Reeves. General appearance variable from feather to feather, wing to wing, and among individuals: size of Ring-billed Gull, black bill with yellow tip, gape black, dark to pale eye, gray to black spotting on head, throat gray with markings, gray ring around neck, upper parts with scattered and solid colored white, black, brown, and gray overlapping feathers, tail gray above with dark median line and white below, breast gray, legs dark to medium brown, wings above and below gray with black or white areas, secondaries gray, black, or white, solid or multicolored, primaries alternating black or white or black with variable areas of white, under wing gray, black, and white.

An Overview of the Birds of the Middle Gila Valley of New Mexico – R.S. Shook, Department of Natural Sciences, Western New Mexico University, Silver City, NM 88061

The Middle Gila Valley of New Mexico (also known as the Cliff/Gila Valley) is defined from the confluence of Mogollon Creek and the Gila River, above the towns of Cliff and Gila, south approximately 35 km to the southernmost point of the Gila Bird Area. Over 325 species of birds have been documented in the Middle Gila Valley of which several species are either federally or state Threatened or Endangered. Of these, the Middle Gila Valley supports one of the largest Willow Flycatcher (*Empidonax traillii extimus*) populations in New Mexico (a twenty-two year average of 149 territories), the densest Common Black Hawk (*Buteogallus anthracinus*) population in North America (an average of 0.60 pairs/km along the 35 km valley), and perhaps the largest Yellow-billed Cuckoo (*Coccyzus americanus*) population in the western United States. These and other species of the Middle Gila Valley, such as the Gila Woodpecker (*Melanerpes uropygialis*), Bell's Vireo (*Vireo bellii*) and Abert's Towhee (*Melozone aberti*) will be discussed.

First-Through Fourth-Year Dispersal of Golden Eagles from Natal Areas across the Colorado Plateau Region – J.R. Dunk, Department of Environmental Science and Management, Humboldt State University, Arcata, California 95521. K. Jacobson, Arizona Game and Fish Department – Raptor Wing, Phoenix, AZ 85806, D.W. LaPlante, Natural Resource Geospatial, Yreka, California 96097. B.A. Millsap, U.S. Fish and Wildlife Service – National Raptor Coordinator. Albuquerque, New Mexico 87103. R.K. Murphy, U.S. Fish and Wildlife Service – Division of Migratory Birds, Albuquerque, New Mexico 87103. D.W. Stahlecker, Eagle Environmental, Inc., Santa Fe, New Mexico 87508. And, B. Woodbridge, U.S. Fish and Wildlife Service – Western Golden Eagle Team, Yreka, California 96097.

Knowledge of age-specific dispersal by Golden Eagles (*Aquila chrysaetos*) from natal areas is needed to help manage the species in North America. During 2010–2015, we used satellite telemetry to document pre-adult dispersal by Golden Eagles from natal areas across the Colorado Plateau Region of the southwestern United States. Here we report on (1) first-year dispersal timing, distance, and age, sex, and area influences; and (2) relationships between first-year patterns and those of second through fourth years. Fifty-six Golden Eagles tagged at age ~55 days during 2010–2014 and that subsequently dispersed yielded hourly ±20-m locations for ≥6 months. Most (>75%) eagles dispersed from natal areas during October-early December. By the subsequent early spring, 70% were within 120 km of natal areas and 25% had moved farther; most that dispersed >500 km died within their first year. We found no relationship between dispersal date and sex or age, though long-distance dispersers left natal areas earlier. Eagles from the more arid part of the study area dispersed greater distances in their first year of life. Overlap of second- and third-year, early spring home ranges (HRs; 95% minimum convex polygon) with first-year HRs was 27% and 71%, respectively.

Distances between centroids of natal areas and of early spring HRs differed little between first and second or third years. Our findings suggest first-year dispersal patterns strongly determine spatial patterns in subsequent pre-adult years. Most eagles stayed within natal landscapes, indicating such areas are critical habitat for more than just breeding pairs.

Potential Heavy Metal Exposure to Snowy Plovers Breeding In the Southern Great Plains – H.M. Ashbaugh and W.C. Conway, Department of Natural Resources Management, Texas Tech University, Box 42125, Lubbock, TX 79409, D.P. Collins, Migratory Bird Office – Region II, U.S. Fish and Wildlife Service, Albuquerque, NM 87103, D.A. Haukos, U.S. Geological Survey, Kansas Cooperative Fish and Wildlife Research Unit, Kansas State University, Manhattan, KS 66506, C. E. Comer, Arthur Temple College of Forestry and Agriculture, Stephen F. Austin State University, Nacogdoches, TX 75962

Interior Snowy Plover (*Charadrius nivosus*) populations are declining due to deteriorating habitat quality, poor juvenile survival, and declining nest success. Currently, Snowy Plover exposure to potential environmental contaminants remains unknown, but may contribute to declining breeding populations in saline lake and alkali flat habitats of the Southern Great Plains. Using inductively coupled mass spectrophotometry, we estimated heavy metal (V, As, Cd, Pb, and Se) concentrations in Snowy Plover blood (to reflect recent potential exposure) and tiger beetles (*Cicindelidae*; to reflect potential prey-related exposure pathways) from breeding habitats in Texas, Oklahoma, and New Mexico. Tiger beetles are predaceous as both adults and larvae, and should reflect potential cumulative heavy metal availability to breeding Snowy Plovers. For all metals, blood and tiger beetle concentrations were below reported background levels, except for Se, where 85 % of snowy plover blood samples were quantifiable and greater than reported toxicity thresholds. Although Se concentrations in tiger beetles were below reported toxicity thresholds for invertebrates, censored regression modeling indicated that tiger beetle concentrations were positively related to snowy plover Se concentrations. Although potential biomagnification pathways are not explicitly known, snowy plovers appear to be bioaccumulating and biomagnifying Se through prey consumption. Chronic exposure to Se can result in reproductive failure, developmental malformations, and mortality and may be a factor in long term population declines. Currently, few data on regional contaminants exist, and this research reveals the significance of continuing monitoring and investigations into the effects of these contaminants on regional Snowy Plover persistence.

Evidence of Mixing of Two Greater Sandhill Crane Populations – D.P. Collins, U.S. Fish and Wildlife Service, Migratory Bird Office – Region 2. P.O. Box 1306, Albuquerque, New Mexico 87103, J.M. Knetter, Idaho Department of Fish & Game, 600 S. Walnut, PO Box 25, Boise, ID 83707. C.M. Conring,, B.A. Grisham, and W.C.

Conway, Department of Natural Resources Management, Texas Tech University, Goddard Building , P.O. Box 42125, Lubbock, TX 79409. S.A. Carleton, U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, New Mexico State University, Las Cruces, NM 88003. And, M.A. Boggie, Department of Biology, New Mexico State University, Las Cruces, NM 88003

Population delineation throughout the annual life cycle is needed to formulate regional and national management and conservation strategies for migratory birds. Despite being well studied continentally, connectivity of Sandhill Crane (*Grus canadensis*) populations throughout the western portion of their North American range remains poorly described. Our objective was to determine if intermingling occurs among any of the western greater Sandhill Crane populations (Rocky Mountain Population, Lower Colorado River Valley Population, and Central Valley Population) in the intermountain west. Capture and marking occurred during winter and summer months on private lands in California and Idaho as well as on three National Wildlife Refuges (Bosque del Apache, Cibola, Sonny Bono Salton Sea National Wildlife Refuges). A majority of marked cranes summered in traditional intermountain west breeding areas. A handful of cranes summered outside of traditional breeding areas in west central Idaho around Cascade Reservoir near Donnelly and Cascade, Idaho. A crane colt captured during the summer survived to winter migration and moved south to areas associated with the Rocky Mountain Population. The integration of the crane colt captured near Donnelly, Idaho, provides the first evidence of potential intermingling between the Lower Colorado River Population and Rocky Mountain Population. Further evidence of intermingling was observed when a crane marked in Arizona presumed to be an LCRV crane stopped over in a traditional RMP fall staging area. We suggest continued marking and banding efforts of all three western populations of cranes will accurately delineate population boundaries and connectivity and inform management decisions.

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