



**NEW MEXICO**  
**ORNITHOLOGICAL SOCIETY**  
**52<sup>nd</sup> ANNUAL MEETING**  
**26 April 2014**  
**Albuquerque, New Mexico**

**NEW MEXICO  
ORNITHOLOGICAL  
SOCIETY  
52<sup>nd</sup> ANNUAL MEETING**

**26 APRIL 2014  
Best Western Rio Grande Inn  
Albuquerque, NEW MEXICO**

**AGENDA**

**APRIL 26, 2014**

- 7:30-8:30 REGISTRATION**
- 8:30-9:30 NMOS BUSINESS MEETING**
- 9:30 – 10:00 BREAK**
- 10:00-10:15 NMOS GREETING**  
DAVE KRUEPER (PRESIDENT)  
ANNOUNCEMENTS
- 10:15-12:00 NMOS GENERAL SCIENCE SESSION**  
**MORNING**  
MARTHA DESMOND (NMSU) SESSION CHAIR
- 10:15-10:35 A SEVENTEEN YEAR ANALYSIS OF POPULATION CHANGES IN  
TWENTY-ONE BREEDING BIRD SPECIES IN THE GILA BIRD AREA**  
R.S. SHOOK
- 10:35-10:55 POST-WILDFIRE TREATMENT EFFECTS ON BIRDS AND  
VEGETATION IN THE WHITEWATER-BALDY COMPLEX, GILA  
NATIONAL FOREST**  
D. CROSLY AND R.S SHOOK

- 10:55-11:15 **SOUTHWESTERN WILLOW FLYCATCHER SURVEY AND MONITORING IN THE GILA LOWER BOX CANYON: 2013**  
R.A. MEYER AND C.R. BRITT
- 11:15-11:35 **THE GEOGRAPHIC ORIGINS OF WINTERING YELLOW-RUMPED WARBLERS (*SETOPHAGA CORONATA*) IN NEW MEXICO: IMPLICATIONS FOR THE MIGRATION-ADAPTED MITOCHONDRIA HYPOTHESIS**  
J. SCHMITT, C.J. WOLF, AND C.C. WITT
- 11:35- 11:55 **CHARACTERIZATION OF THE YELLOW-RUMPED WARBLER MITOCHONDRIAL DNA CONTACT ZONE: NATURAL SELECTION OR NEUTRAL DIFFUSION?**  
C.J. WOLF, C.J. SCHMITT, AND C.C. WITT
- 12:00 -1:30 **LUNCH**
- 1:30-5:00 **NMOS GENERAL SCIENCE SESSION AFTERNOON**  
MARTHA DESMOND (NMSU) SESSION CHAIR
- 1:30-1:50 **ROOSEVELT COUNTY BIG YEAR, 2013**  
G.M. BEAUPREZ
- 1:50-2:10 **N.M. DEPARTMENT OF GAME AND FISH UPDATES**  
K. MADDEN, M. DARR, AND G.M BEAUPREZ
- 2:10-2:30 **PINYON JAY POPULATION STATUS AND THREATS**  
K. JOHNSON AND J. SMITH
- 2:30-2:50 **ESTIMATING SURVIVAL AND MOVEMENTS OF BAND-TAILED PIGEONS IN NEW MEXICO**  
D.J. GRIFFIN, S.A. CARLETON, AND D. COLLINS
- 2:50-3:20 **BREAK**  
INFORMAL POSTER SESSION
- 3:20-3:40 **SURVEY FOR SPRAGUE'S PIPITS AND OTHER GRASSLAND BIRDS IN FALL MIGRATION AT SEVILLETA NATIONAL WILDLIFE REFUGE**  
K. GRANILLO
- 3:40-4:00 **REPRODUCTIVE DYNAMICS OF LOGGERHEAD SHRIKES IN THE ARID SOUTHWEST; EFFECTS OF PRECIPITATION AND TEMPERATURE**  
C. BORGMAN AND B.O. WOLF

- 4:00-4:20      **JUVENILE BURROWING OWL SURVIVAL AND DISPERSAL IN THE URBAN/AGRICULTURAL INTERFACE OF LAS CRUCES, NM**  
E. DUKE, M.J. DESMOND, AND D. VANLEEUEWEN
- 4:20 – 4:40      **EFFECTS OF CLIMATE VARIABILITY ON THE POPULATION, REPRODUCTION, AND PHENOLOGY OF BURROWING OWLS ON KIRTLAND AIR FORCE BASE**  
K.K. CRUZ-MCDONNELL AND B.O. WOLF
- 4:40 – 5:00      **A TAXONOMIC REVISION OF FLAMMULATED OWL SUBSPECIES**  
R.DICKERMAN AND A. JOHNSON

**POSTERS** (An informal poster session will be held during the afternoon break @ 2:50-3:20)

**RAMPANT AVIAN MALARIA IS DIVERSE AND GEOGRAPHICALLY STRUCTURED IN THE YELLOW-RUMPED WARBLER OF THE SOUTHWESTERN UNITED STATES**

S. GALEN, C. J. WOLF, C.J. SCHMITT, AND C.C. WITT

**BLACK-THROATED GRAY WARBLER NESTING HABITAT IN THE MANZANITA MOUNTAINS OF NEW MEXICO**

A.C. GORBET, L.P. GORBET, AND C.L. HAYES

**MALE BROOD PROVISIONING RATES PROVIDE EVIDENCE OF NONRANDOM MATING IN COOPER'S HAWKS (*ACCIPITER COOPERII*)**

L.A. LIEN, B.A. MILLSAP, AND G.W. ROEMER

5:05              **ADJOURN**

5:05              **INFORMAL SOCIAL**

LOCATION: Zia Room, Best Western Rio Grande Inn

6:30              **NMOS BANQUET AND KEYNOTE PRESENTATION: COOPER'S HAWK POPULATION BIOLOGY IN ALBUQUERQUE, NEW MEXICO**

BRIAN MILLSAP, USFWS NATIONAL RAPTOR COORDINATOR

LOCATION: Rio Grande Ballroom, Best Western Rio Grande Inn

APRIL 27, 2014

## FIELD TRIP

8:00 -12:00      **TIJERAS RANGER STATION** (meeting location to arrange carpool)  
Otero Canyon Birding – Black-throated Gray Wabler, Plumbeous Vireo, Gray Flycatcher, Virginia's Warbler and other species.

## ACKNOWLEDGMENT

The New Mexico Ornithological Society thanks Andy Johnson for the creation and donation of the Cooper's Hawk art being used for the NMOS 52<sup>nd</sup> Annual Meeting.

## ABSTRACTS

### ORAL PRESENTATIONS

(IN ORDER OF PRESENTATION; PRESENTERS UNDERLINED)

#### **A SEVENTEEN YEAR ANALYSIS OF POPULATION CHANGES IN TWENTY-ONE BREEDING BIRD SPECIES IN THE GILA BIRD AREA.**

R.S. Shook, Department of Natural Sciences, Western New Mexico University, Silver City, NM 88062

A weekly periodic strip census was conducted in the Gila Bird Area from mid-May 1996 through August 2013. Using linear regression analysis, the average number of detections per km censused per breeding season per year were compared for 21 breeding species chosen to represent diversity in both taxonomic and habitat preference. Species chosen for analysis were: Mallard (*Anas platyrhynchos*), Wild Turkey (*Meleagris gallopavo*), Common Black-Hawk (*Buteogallus anthracinus*), Killdeer (*Charadrius vociferus*), Yellow-billed Cuckoo (*Coccyzus americanus*), Northern Flicker (*Colaptes auratus*), Western Wood-Pewee (*Contopus sordidulus*), (Southwestern) Willow Flycatcher (*Empidonax traillii extimus*), Black Phoebe (*Sayornis nigricans*), Brown-crested Flycatcher (*Myiarchus tyrannulus*), Bell's Vireo (*Vireo bellii*), Lucy's Warbler (*Oreothlypis luciae*), Common Yellowthroat (*Geothlypis trichas*), Yellow Warbler (*Setophaga petechia*), Yellow-breasted Chat (*Icteria virens*), Summer Tanager (*Piranga rubra*), Northern Cardinal (*Cardinalis cardinalis*), Red-winged Blackbird (*Agelaius phoeniceus*), Hooded Oriole (*Icterus cucullatus*), Bullock's Oriole (*Icterus bullockii*), and Lesser Goldfinch (*Spinus psaltria*). Nine of the twenty-one breeding species showed no significant change in average detections per km censused per breeding season for the years 1997 through 2013: Wild Turkey, Common Black-Hawk, Yellow-billed Cuckoo, Willow Flycatcher, Lucy's Warbler, Yellow-breasted Chat, Northern Cardinal, Hooded Oriole and Lesser Goldfinch. A significant change in the average detections per km censused per breeding season for the years 1997 through 2013, were found in populations of Mallard, Killdeer, Northern Flicker, Western Wood-Pewee, Black Phoebe, Brown-crested Flycatcher, Bell's Vireo, Yellow Warbler, Common Yellowthroat, Summer Tanager, Red-winged Blackbird, and Bullock's Oriole.

#### **POST-WILDFIRE TREATMENT EFFECTS ON BIRDS AND VEGETATION IN THE WHITEWATER-BALDY COMPLEX, GILA NATIONAL FOREST**

D. Crosley and R.S. Shook, Department of Natural Sciences, Western New Mexico University Silver City, NM 88062

In 2012, the Whitewater-Baldy Fire became the largest wildfire in New Mexico history, burning over 297,000 acres, with approximately 38,000 acres classified as severely burned. Aerial broadcast seeding and mulching are commonly used post-wildfire treatments and were prescribed for specific burned areas. The effectiveness of these treatments at increasing vegetation cover and reducing noxious invasive plant species is highly variable depending, in part, on geographic location, topography, precipitation patterns, soil characteristics, and life histories of plants. The effects of these treatments on bird communities is unknown, although fire induced habitat changes alone have been shown to be beneficial for some avian species while

detrimental to others. Numerous post-fire treatment studies have been conducted in Ponderosa Pine (*Pinus ponderosa*) forests, but relatively few have focused on higher elevation mixed conifer forests and none in the Gila National Forest. The purpose of this study is to examine the effects of the ground cover treatments of seeding and combined seeding and mulching in severely burned mixed conifer forests. Data collected during the first year after the fire on plant and bird communities will be presented, providing a baseline for ongoing studies.

### **SOUTHWESTERN WILLOW FLYCATCHER SURVEY AND MONITORING IN THE GILA LOWER BOX CANYON: 2013**

R.A. Meyer, La Tierra Environmental Consulting, 449 El Prado, Las Cruces, NM 88005, and Charles R. Britt, Mesa Ecological Services, 200 Carlton Rd, Las Cruces, NM 88007

Restoration efforts in the Gila Lower Box Canyon (GLBC), initiated in the early 1990's, have resulted in rapid regeneration of native riparian vegetation, increasing habitat for wildlife, including the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) (SWWF). SWWF habitat evaluation and surveys of the GLBC were initiated in 1993. Numbers of SWWFs remained limited through the early years, but since 1999 proportionally large increases occurred through 2008. In 2013, a total of 131 resident SWWFs, including 54 pairs occupied 75 territories. We monitored 71 nesting attempts by 49 pairs. Two additional nesting attempts involved an unpaired female adjacent to a pair. A minimum total of 68 eggs and 40 young were found in nests. Sixteen of 54 pairs (29.6%) were successful in fledging at least one young. We conservatively estimated that 23 young fledged (57.5%). Forty-five of 61 nests with known outcomes failed (73.7%) which was the highest nest failure rate recorded for the GLBC. The abundance of SWWFs, proportion of territories occupied by pairs, and nest success were all lower in 2013 than the previous survey in 2008. SWWF populations fluctuate over time at sites but drought conditions in recent years likely have negatively impacted the Gila Lower Box riparian area and habitat for the SWWF.

### **THE GEOGRAPHIC ORIGINS OF WINTERING YELLOW-RUMPED WARBLERS (*SETOPHAGA CORONATA*) IN NEW MEXICO: IMPLICATIONS FOR THE MIGRATION-ADAPTED MITOCHONDRIA HYPOTHESIS.**

C.J. Schmitt, C.J. Wolf, and C.C. Witt, Museum of Southwestern Biology and Biology Department, University of New Mexico, Albuquerque, New Mexico 87131-0001

Audubon's Warbler (*Setophaga. coronata auduboni*) consists of two deeply divergent (4.1%) mitochondrial haplotype clades that meet in north-central New Mexico and northern Arizona. The two clades co-occur across this contact zone during the breeding season, but it is unknown whether the contact zone also represents a divide in migratory strategy and winter distribution. Toews et al. (Evolution 68: 241-255) used hydrogen isotopes in feathers to infer the migratory behavior across the contact zone between the two mtDNA clades. They concluded that southern populations do not migrate any appreciable distance and are leapfrogged by northern populations that migrate 4°-10° south. If this is true, a substantial portion of wintering Audubon's Warblers in New Mexico should carry the southern mtDNA haplotype. To test this hypothesis, we collected and compiled museum specimens of Yellow-rumped Warblers in northern and central New Mexico between December and February. We found that all wintering birds in New Mexico have the northern mitochondrial haplotype, suggesting that their breeding localities were north of New

Mexico. Additionally, our analyses of avian malaria strains, wing length, and plumage coloration indicate that the vast majority of winter Audubon's Warblers in New Mexico summered in Canada. Our results refute the hypothesis that the majority of breeding Audubon's Warblers in New Mexico also winter locally. This casts doubt on the hypothesis that the divergent mitochondrial DNA clades are differentially adapted for migratory physiology. Finally, our results suggest that Yellow-rumped Warblers do not exhibit leapfrog migration.

### **CHARACTERIZATION OF THE YELLOW-RUMPED WARBLER MITOCHONDRIAL DNA CONTACT ZONE: NATURAL SELECTION OR NEUTRAL DIFFUSION?**

C. J. Wolf, C.J. Schmitt, and C.C. Witt, Museum of Southwestern Biology and Department of Biology, University of New Mexico, Albuquerque, New Mexico 87131

Recent research on the Yellow-rumped Warbler complex has revealed the existence of two deeply divergent (4.1%) mitochondrial DNA haplotype clades. The contact zone between those two forms occurs in the middle of the distribution of the Audubon's Warbler (*Setophaga coronata auduboni*), in north central New Mexico and northern Arizona. To date, sampling has not been sufficient to determine the shape and position of the cline. Toews et al. (*Evolution* 68: 241-255) suggested that this cline corresponds with a boundary between locally adapted mtDNA types that differ in function, perhaps as a result of differences migratory behavior. We sampled warblers along elevational transects in nine different mountain ranges in New Mexico and Arizona during the summers of 2012 and 2013 and pooled our samples with previously published data for a total of 303 individuals from eleven sites. We found that what was thought to be a latitudinal cline is really a southwest-northeast one, with northern haplotypes extending much further south in New Mexico than in Arizona. We found no effects of elevation or slope on haplotype composition. Comparisons among mountain ranges at similar latitudes also failed to show significant effects of mountain range characteristics, although ranges with higher average elevations tended to have lower proportions of the southern haplotype. Although the amount of mitochondrial DNA divergence between these two haplotypes is typically associated with species-level divergence in birds, the functional and ecological differences between the two haplotypes remain difficult to discern.

### **ROOSEVELT COUNTY BIG YEAR, 2013**

G. M. Beauprez, Bird Program, Wildlife Management Division, N.M. Department of Game and Fish, Santa Fe, NM 87507

During the 2013 calendar year I conducted a “big year” in Roosevelt County, N.M. in an attempt to locate and identify as many species of birds as possible. I identified 208 species of birds representing 46 families. I recorded 5 new county records including Cackling Goose, Hooded Merganser, Common Goldeneye, Bonaparte’s Gull, and Rufous-backed Robin. The most productive hotspots included the Melrose Woods (50 year species), Portales Water Treatment Ponds (48 year species), Milnesand (28 year species), Beauprez house (25 year species), and Oasis State Park (17 year species). I missed 26 species that were recorded by others in the county for the year. Notable misses included Canyon Towhee, Peregrine Falcon, Double-crested Cormorant, Short-eared Owl, Osprey, Sora, Cordilleran Flycatcher, Calliope Hummingbird, and Sprague’s Pipit.

## **N.M. DEPARTMENT OF GAME AND FISH UPDATES**

K. Madden, M. Darr, and G.M. Beauprez, Bird Program, Wildlife Management Division  
N.M. Department of Game and Fish, Santa Fe, NM 87507

Biologists with the Department's Bird Program will present updates on the past year's projects, including work on Lesser-Prairie Chickens, doves, Sandhill Cranes, Band-tailed Pigeons, Cooper's Hawks, Burrowing Owls, wildlife management area inventories, and Wild Turkey transplants. We will discuss our current priorities and future projects, as well as opportunities for volunteers to get involved.

## **PINYON JAY POPULATION STATUS AND THREATS**

K. Johnson and J. Smith, Natural Heritage New Mexico, Department of Biology, University of New Mexico, MSC03 2020, Albuquerque, NM 87131

Pinyon Jays (*Gymnorhinus cyanocephalus*) have an evolved mutualism with pinyon trees (*Pinus edulis*, *P. monophylla*), whereby the jays serve as the tree's primary long-distance seed disperser, and abundant pinyon seeds increase Pinyon Jay population viability. According to BBS trend analyses, Pinyon Jay populations have been declining significantly for over 40 years. Pinyon Jay population decline is likely influenced by the increased temperatures and decreased precipitation of climate change. Ongoing climate changes have potential to affect pinyon tree distribution, canopy cover, and size and frequency of mast crops; which in turn will impact availability of suitable nesting habitat, protection from weather extremes and nest predators, and pinyon mast crops. As Pinyon Jay populations decline, the ecosystem services they provide to pinyon-juniper woodlands are lost, and with them the ability of pinyon trees to recolonize traditional sites and establish in new areas. Due to features of Pinyon Jay biology, BBS data may not provide the most reliable indications of Pinyon Jay population trends; therefore, we are establishing a monitoring program for Pinyon Jays in New Mexico. We would appreciate information on the location of nesting colonies anywhere in the state.

## **ESTIMATING SURVIVAL AND MOVEMENTS OF BAND-TAILED PIGEONS IN NEW MEXICO**

D.J. Griffin and S.A. Carleton, New Mexico State University, US Geological Survey, Cooperative Fish & Wildlife Research Unit, 2980 S Espina, Knox Hall 132, Las Cruces, NM 88003, and D. Collins, U.S. Fish and Wildlife Service, Migratory Bird Office, Southwest Region Region 2, 500 Gold Avenue SW, RM 8023, Albuquerque, NM 87102

We studied the demography, distribution, and movements of Band-tailed Pigeons (*Patagioenas fasciata*) from June 19 to September 28, 2013 near Silver City, New Mexico. Band-tailed Pigeons were captured and individually marked with leg bands and PIT tags. A PIT tag reader and data logger on site recorded the presence of individuals. To examine movements of pigeons, we fitted birds with light level geolocators and VHF transmitters. For all birds we recorded: age, sex, length of bill, tarsus and wing, body mass, molt status, and we took oral swabs to test for presence of *Trichomonas gallinae*. We captured and marked 126 Band-tailed pigeons; 14 were fitted with geolocators and 9 with VHF transmitters. Transmitted pigeons remained in the area until early August, when they dispersed following the onset of summer rain. One nest was found 15.2 km from the capture site, however, most pigeons moved >20 km from the capture site and



were not detected. During the study, 37 PIT-tagged pigeons were recorded at the site by the data logger. We did not detect *T. gallinae* in pigeons and most individuals departed the area prior to September 16<sup>th</sup>. We plan to continue the study at this site in 2014.

### **SURVEY FOR SPRAGUE'S PIPITS AND OTHER GRASSLAND BIRDS IN FALL MIGRATION AT SEVILLETA NATIONAL WILDLIFE REFUGE**

K. Granillo, Sevilleta National Wildlife Refuge, Socorro, NM 87801

Apparently widespread during early European settlement, Sprague's Pipits (*Anthus spragueii*) breeding distribution has contracted sharply from its historical range. Sprague's Pipits are short distance migrants, moving from breeding grounds in the northern prairies of southern Canada and northern United States to the wintering grounds in southern United States and northern México. Fall migration primarily occurs through the Great Plains from late September through early November. They are rarely seen in migration which may partially be attributed to the fact that there are few migration studies in grasslands or few observers in remote grassland areas. This pilot study was to determine if line transect methodology could be used to detect the birds, and if so, what was their distribution and use of the varied grasslands at Sevilleta NWR. In 2012, we established 4 study areas; two in short grass prairie and two in Chihuahuan desert grasslands. We collected data on all bird species seen and/or heard, not just the pipits. In 2013 we expanded to 8 study areas, with 6 in the short grass prairie, and 2 in the Chihuahuan desert grasslands. We detected small numbers of pipits in both years throughout the fall and well into December. We believe the line-transect technique has merit for surveying cryptic grassland birds during migration and winter.

### **REPRODUCTIVE DYNAMICS OF LOGGERHEAD SHRIKES IN THE ARID SOUTHWEST; EFFECTS OF PRECIPITATION AND TEMPERATURE**

C. Borgman, Envirollogical Services, Inc., Albuquerque, NM 87120, and B.O. Wolf, Department of Biology, University of New Mexico, Albuquerque, NM 87120

New Mexico holds many important breeding sites for Loggerhead Shrikes (*Lanius ludovicianus*), including Kirtland Air Force Base. Breeding Bird Surveys in New Mexico have shown a 3.2% decline in Loggerhead Shrikes since 1966. Land use changes and the associated loss of suitable breeding habitat are often cited as a cause of this decline. However, the relationship between reproductive success and climate has not been explored. As New Mexico trends towards a hotter and drier climate, it is increasingly important to examine how these changes will affect shrike populations. We examined shrike reproductive success and biology during a period of warming at a site where land use changes have been relatively static, but precipitation is highly variable. From 2007 to 2012, we studied aspects of Loggerhead Shrike breeding biology including total number of breeding pairs, nest attempts, clutch size, number fledged, nest success and nest initiation dates. We then considered the effects of environmental factors such as precipitation and temperature over biologically relevant periods on these variables. Our results show significant changes in nest initiation dates over the study period and outline the relationship between temperature and precipitation variables and reproductive success.

## **JUVENILE BURROWING OWL SURVIVAL AND DISPERSAL IN THE URBAN/AGRICULTURAL INTERFACE OF LAS CRUCES, NM**

Eboni Duke, Martha, Desmond, New Mexico State University, Department of Fish, Wildlife and Conservation Ecology, Las Cruces, NM 88003 and D. VanLeeuwen, Department of Economics and International Business, New Mexico State University, Las Cruces, NM 88003

We examined survival and dispersal patterns of juvenile Burrowing Owls (*Athene cunicularia*) in urban and agricultural environments of southern New Mexico. We hypothesized that 1) Burrowing Owl mortality would be influenced by the amount of development surrounding the nest and 2) dispersal distance would be influenced by body condition, measures of interspecific competition and/or habitat type and fragmentation. Forty-two juvenile Burrowing Owls (n= 23 and 19 in 2012 and 2013, respectively) were radio tagged at 35-42 days of age. Owls were located daily between 1000-1600 h to determine diurnal roost locations and daily survival. Of the 42 owls radio-tagged, there were 12 mortalities, with the major cause of mortality being predation. The majority of mortalities occurred within the first month postfledging. We used NAIP imagery to classify habitat type and the number of habitat patches within 600 m of the nest. Habitat was classified as urban (commercial, residential), agriculture, greenspace (parks, desert scrub), and other. Mortality was highest for owls in urbanized landscapes and there was weak support for year and sex. Juvenile dispersal was negatively influenced by % urbanization and positively influenced by body condition. Juveniles moved on average  $328.5 \pm 49.5$  m with males moving  $341.7 \pm 70.4$  m and females  $284.8 \pm 69$  m. Juveniles in urban areas dispersed < 120 m on average from the nest which was significantly less than juveniles in other habitat types suggesting urbanization and fragmentation act as barriers for dispersal.

## **EFFECTS OF CLIMATE VARIABILITY ON THE POPULATION, REPRODUCTION, AND PHENOLOGY OF BURROWING OWLS ON KIRTLAND AIR FORCE BASE**

K.K. Cruz-McDonnell, Department of Biology, University of New Mexico, Albuquerque, NM 87131 and Envirological Services, Inc. Albuquerque, NM 87131 and B.O. Wolf, Department of Biology, University of New Mexico Albuquerque, NM 87131

The Burrowing Owl (*Athene cunicularia*) population on Kirtland Air Force Base (KAFB) has been monitored annually since 1998. After 16 years, the breeding population has declined 98.1%, and nest success and productivity have also declined significantly. Although population declines can often be attributed to habitat loss, growth and development on KAFB remained relatively stable during this period. On the other hand, current drought conditions are extreme. We examined effects of climate variability on Burrowing Owl population and reproductive dynamics, prey availability, and breeding phenology, and tested whether prey abundance and shifting phenology influence reproductive parameters. Our results demonstrate a strong association between climate variability and fluctuations in the owl population size and reproductive rates. The southwestern USA is said to be a climate change hotspot, with projections including warmer temperatures, less annual precipitation, and an increase in frequency and severity of extreme events such as drought and heat waves. Burrowing Owls may experience increased vulnerability under these extreme conditions.

## **A TAXONOMIC REVISION OF FLAMMULATED OWL SUBSPECIES**

R.W. Dickerman and A.B. Johnson, Museum of Southwestern Biology  
University of New Mexico, Albuquerque NM 87131

The Flammulated Owl (*Psiloscoops flammeolus*) consists of migratory gray populations that breed north of the Mexican border, and rufous, brown, or cinnamon populations that occur from the US - Mexico border ranges south to Guatemala. Current subspecies taxonomy has been muddled by a less-than-comprehensive review of available specimens when new subspecies were described. We report on the geographic variation in Flammulated Owls based on all specimens that we know to exist from Mexico and Guatemala that are archived in United States museums. We found that the lectotype specimen for the species in the Berlin Museum für Naturkunde refers to the gray, not a rufous, population, and that the geographic variation in Mexico is not adequately described by current subspecies nomenclature. We propose several new subspecies to describe this variation.

## **POSTERS**

(IN ALPHABETICAL ORDER BY FIRST AUTHOR; PRESENTERS  
UNDERLINED)

### **RAMPANT AVIAN MALARIA IS DIVERSE AND GEOGRAPHICALLY STRUCTURED IN THE YELLOW-RUMPED WARBLER OF THE SOUTHWESTERN UNITED STATES**

S.C. Galen, C.J. Wolf, C.J. Schmitt, and C.C. Witt.

Museum of Southwestern Biology and Department of Biology, University of New Mexico  
Albuquerque, New Mexico 87131

Haemosporidian parasites of birds ('avian malaria') are common and highly consequential for survival and reproduction of wild birds. There have been no systematic surveys for these parasites in the southwestern United States. We used a PCR assay to search for avian malaria in a common and widespread breeding bird of southwestern sky islands, the Yellow-rumped Warbler (*Setophaga coronata*). We sampled along elevational transects in eight different mountain ranges in New Mexico and Arizona during the summers of 2012 and 2013. Overall malaria prevalence was 69% (119/172), with 20 mtDNA lineages detected from 160 infections. Seventy percent of the mtDNA lineages had not been found previously and likely represent novel malaria species. Five of the six lineages that had been detected in earlier published surveys were found in other host species in the family Parulidae, suggesting that these parasites may be limited in their host distributions. Parasites of the genus *Haemoproteus* were most abundant, infecting 60% of all warblers surveyed, followed by *Leucocytozoon* (24%) and *Plasmodium* (~15%). *Haemoproteus* was also the most diverse genus with 10 unique lineages recovered. *Leucocytozoon* and *Plasmodium* were each represented by five lineages. Mountain ranges varied significantly in prevalence and diversity of avian malaria. This study revealed that avian malaria is abundant and diverse in the montane forests of the southwestern USA where it comprises a cryptic, but most likely potent ecological force. The community of avian malaria infecting Yellow-rumped Warblers appears to be evenly divided between widespread host-generalists and novel lineages that are most likely local host-specialists.

## **BLACK-THROATED GRAY WARBLER NESTING HABITAT IN THE MANZANITA MOUNTAINS OF NEW MEXICO**

A. Gorbet, C. and L. P. Gorbet, Rio Grande Bird Research, Inc., 7204 Oralee St. NE, Albuquerque, NM 87109, and Charles L. Hayes, New Mexico Department of Game and Fish, One Wildlife Way, Santa Fe, NM 87507

The Black-throated Gray Warbler (*Setophaga nigrescens*) is considered a New Mexico Species of Greatest Conservation Need based upon concerns regarding alteration of its piñon-juniper and oak-juniper habitats within the state. Despite the importance of habitat features in assessing the status of Black-throated Gray Warbler populations, few studies have provided information regarding the breeding biology and associated habitat use by this species. To address these information and management gaps, we monitored the breeding biology of Black-throated Gray Warblers from 2010-2012 in Otero Canyon of the Manzanita Mountains, New Mexico, and compared nest sites to random locations. Nest sites were located in wooded areas with tree densities ranging from 318 to 1083 trees/ha. Of the nest sites, 33 of 34 were found in one-seed juniper (*Juniperus monosperma*) or pine pinyon (*Pinus edulis*) trees. Models for predicting nest vs. random plots included mean diameter of pinyon pines present, mean vegetation pole concealment, proportion of canopy from deciduous trees, and slope. Overall, nest site descriptions included vegetative features that may be common to un-thinned pinyon -juniper woodlands, and may help to explain the relatively high abundance of Black-throated Gray Warbler within this densely-wooded, lower-elevation montane habitat.

## **MALE BROOD PROVISIONING RATES PROVIDE EVIDENCE OF NONRANDOM MATING IN COOPER'S HAWKS (*ACCIPITER COOPERII*)**

L.A. Lien, Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, NM 88003, B.A. Millsap, Department of Biology, New Mexico State University, Las Cruces, NM 88003, and G.W. Roemer, Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, NM 88003

Birds of prey utilize various reproductive strategies to maximize reproductive success. Perhaps foremost amongst these strategies is a form of sexual selection resulting from mate choice. In the hawk family, Accipitridae, males compete for territories and then provision females and offspring during the breeding season. Females compete for high-quality males that are adept at provisioning. The cues females use to choose high quality males and whether one-year old (SY), floater females compete equally with adult females for males is largely unknown. We hypothesize that adult females are more successful at obtaining high-quality males and that male provisioning rates at nests occupied by adult females will be higher than provisioning rates at nests with SY females and males at nests with older females. We studied an urban population of Cooper's Hawks (*Accipiter cooperii*) from April-July, 2013. We observed twenty nests during each phase of the nesting cycle and compared provisioning rates of males to both SY and adult females. In accordance with our hypothesis, males demonstrated higher provisioning rates at nests with adult females than when compared with males paired with SY females. Provisioning rates increased at a steady rate for both SY and adult nests over the nesting season, and nests with SY females were located in territories with significantly lower prey density than nests with adult females; suggesting that male acquisition of a high-quality territory may influence

provisioning rates. Cumulatively, these results indicate that age-specific, intrasexual selection is occurring in our study subjects, with older females obtaining higher-quality males.