

# PROGRAM & ABSTRACTS



## NEW MEXICO ORNITHOLOGICAL SOCIETY 48<sup>TH</sup> ANNUAL MEETING

10 April 2010  
Albuquerque, New Mexico

**NEW MEXICO  
ORNITHOLOGICAL  
SOCIETY  
48<sup>TH</sup> ANNUAL MEETING**

10 April 2010  
Best Western Rio Grande Inn  
Albuquerque, New Mexico



**AGENDA**

- 8:00-9:00 a.m. **REGISTRATION**
- 9:00-9:30 **NMOS BUSINESS MEETING**
- 9:30-10:00 Coffee/Snacks available – Finish registration
- 10:00-10:15 **NMOS Greeting** – Roland Shook (President)  
- Announcements
- 10:15-11:45 **NMDGF/NMOS YELLOW-BILLED  
CUCKOO SYMPOSIUM**  
- Hira A. Walker (NMDGF), Session Chair
- 10:15-10:25 **Introduction to Symposium.** H.A. Walker
- 10:25-10:45 **Distribution and status of the Yellow-billed Cuckoo  
in New Mexico.** S.O. Williams III and J. Travis

- 10:45-11:05 **Yellow-billed Cuckoo surveys along the middle Rio Grande, New Mexico.** S.D. Moore, D.D. Ahlers, and V. Johanson
- 11:05-11:25 **Yellow-billed Cuckoo home range, habitat use, and migration studies on the middle Rio Grande, New Mexico.** J.D. Sechrist, D.D. Ahlers, V. Johanson, and R. Doster
- 11:25-11:45 **Yellow-billed Cuckoo habitat use and its implications for riparian conservation and restoration.** M.J. Johnson and J. A. Holmes
- 11:45 – 1:15 **LUNCH**
- 1:15 – 4:30 **NMOS GENERAL SCIENCE SESSION**  
- Martha J. Desmond (NMSU), Session Chair
- 1:15-1:30 **Trachea length and vocal identification of Sandhill Crane subspecies.** M.R. Jones and C. Witt
- 1:30-1:45 **Waterfowl body condition and dispersal patterns for waterfowl that overwinter at the Bosque del Apache National Wildlife Refuge, Socorro, NM.** B.E. Wadlington, Z.F. Jones, J.N. Vradenburg, and D.A. Haukos
- 1:45-2:00 **A year on the delta at Morgan Lake, San Juan County.** T. Reeves
- 2:00-2:15 **Burrowing Owl productivity in relation to local and landscape factors across a latitudinal gradient.** R.S. Treminio, J. Good, M.J. Desmond, G.W. Roemer, C. Campbell, M. DeVries, and W. Gould

- 2:15-2:30      **Prey selection in migrating Sharp-shinned Hawks.**  
J.P. DeLong, S.W. Cox, N.S. Cox, Z.M. Hurst, and J.P. Smith.
- 2:30-2:45      **Falcons as neighbors, part II: The unusual 2009 observations of nesting American Kestrels in El Dorado at Santa Fe, New Mexico.** D. Stahlecker
- 2:45-3:00      **Response of a winter sparrow community to a seed manipulation experiment.** M.J. Desmond, C. Mendez-Gonzalez, and L. Abbott
- 3:00 – 3:30      **BREAK**
- 3:30-3:45      **The effects of fire and grazing on avian abundance and diversity in an Arizona Oak Savanna.** C.T. Nichols and Z.F. Jones
- 3:45-4:00      **Responses of birds to control of big sagebrush near Huerfano Mountain, San Juan County, New Mexico.** C.G. Schmitt and D.W. Still
- 4:00-4:15      **Breeding bird responses to rangeland restoration in southern New Mexico.** J.M. Coffman
- 4:15-4:30      **Tracking water resource use by migrant and resident birds in the Sonoran Desert using stable isotopes.** T.C. Hyde and B.O. Wolf

## **POSTERS**

**Southwestern Willow Flycatcher studies within the middle Rio Grande, NM.** D.D. Ahlers, S.D. Moore, and V. Johanson

**Yellow-billed Cuckoo home range, habitat use, and migration studies on the middle Rio Grande, New Mexico.** D.D. Ahlers, J. D. Sechrist, V. Johanson, and R. Doster

**New Mexico colonial waterbird survey – call for volunteers.** W.H. Howe and H. Walker

**Watershed restoration on Kewa tribal lands.** C.K. Lee and S.J. Nieto

**A landscape level GIS prioritization of playa lakes for conservation in Roosevelt County, NM.** B.E. Wadlington and Z.F. Jones

4:30 p.m.            **ADJOURN** until Banquet

6:30 p.m.            **NMOS BANQUET**

7:30 p.m.            **KEYNOTE PRESENTATION**  
**Seriously Cuckoo: How I spent my summer vacations for the last 25 years**  
- Dr. Murrelet Halterman (Cuckoo Project Director, Southern Sierra Research Station)

# ABSTRACTS

## ORAL PRESENTATIONS

(in order of presentation; presenter underlined)

### INTRODUCTION TO SYMPOSIUM

H.A. WALKER, New Mexico Department of Game and Fish, Santa Fe, NM 87106

The Yellow-billed Cuckoo (*Coccyzus americanus*; cuckoo) is a Neotropical migrant, breeding in wet habitats throughout North America and wintering primarily in South America east of the Andes. Documented population declines and local extirpations in the western United States prompted the United States Fish and Wildlife Service (USFWS) in 2001 to determine that listing of the cuckoo population west of the crest of the Rocky Mountains as endangered was warranted, but precluded by higher priority listing actions. Since the listing of the western cuckoo population as a candidate under the Endangered Species Act, land managers have sought guidance and information on how best to implement recovery actions for the species in the west, but they have been met with disparate and incomplete information. As major rivers in Arizona and New Mexico are considered to be important strongholds for the western cuckoo population, ascertaining cuckoo population status and habitat requirements in these two states is particularly integral to conservation efforts. This symposium will serve as a venue for Yellow-billed Cuckoo researchers throughout New Mexico, as well as from Arizona, to share their research addressing many pressing habitat, demographic, and behavioral issues of relevance to managing Yellow-billed Cuckoos and ensuring long-term survival of ecologically functional populations. The symposium will provide an unprecedented opportunity to collaborate and improve our understanding of and management actions for the Yellow-billed Cuckoo in New Mexico

### DISTRIBUTION AND STATUS OF THE YELLOW-BILLED CUCKOO IN NEW MEXICO

S.O. WILLIAMS, III, Division of Birds, Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM 87131, and J.R. TRAVIS, Rivers and Birds Inc., Albuquerque, NM 87111

The Yellow-billed Cuckoo (*Coccyzus americanus*) is an uncommon to locally fairly common, regular (annual), summer resident in New Mexico, occurring statewide, but being more numerous in the southern half. The species has a long history of occurrence in the state, from early territorial days to the present, with some 2000 reports for the period 1852-2009. To date, there are records for Yellow-billed Cuckoos for all 33 New Mexico counties, and summer records, implying local breeding, for 32 of them and with nesting confirmed in at least 14, these located in all quadrants of the state. The species typically is present from early/mid-May to mid-September, with arrival dates closely correlated with latitude; extreme arrivals and departures are 21 April and 16 October. Breeding occurs generally from early June to late August, but with nest initiation as early as 15 May and adults tending fledglings as late as 20 September. Most occurrences are in major river valleys, including the San Juan, Canadian, Rio Grande, Pecos, and Gila, but the species occurs in numerous smaller drainages plus isolated wetlands, isolated woodlands, and suburban plantings away from river valleys. Elevations of occurrence range from

890 m on the lower Pecos, 1070 m on the lower Rio Grande, and 1130 m on the lower Gila up to 2250 m in the northern mountains; greatest densities, however, are below about 1500 m. Vegetation at occupied habitats can be primarily native, mixed native and exotic, or primarily exotic plant species, the latter including riparian saltcedar, orchards, and ornamental/shade plantings. Flowing, standing, or nearby water is not characteristic of all occupied habitats. Taxonomy is in need of clarification; the subspecies boundary (if any) variously placed: 1) at eastern New Mexico state line; 2) between Pecos River and Rio Grande; 3) at Continental Divide. The Continental Divide has no discernible influence on cuckoo distribution in the state, as has been asserted for states to the north; over two-thirds of New Mexico is east of the divide. Population estimates derived from systematic avian surveys of major New Mexico river systems in early 1980s suggested a minimum of at least 1000 pairs statewide, with the largest populations in the lower Pecos, middle Rio Grande, and Gila valleys. Results of a study in the early 2000s to detect possible changes in geographic distribution and population size suggested overall distribution had remained unchanged; numbers in Gila and Pecos study areas were unchanged from historic levels but numbers in a Rio Grande study area had declined. Since that study, numbers have declined in the lower Pecos but increased numbers have been documented in the middle Rio Grande. Perhaps the greatest threat to the species in New Mexico is removal of saltcedar from the Pecos and other drainages. Other potential threats include effects of pesticides and loss or fragmentation of suitable woodland habitats to urbanization, agricultural conversion, excessive livestock grazing, inundation, altered hydrology, or other disruptions.

## **YELLOW-BILLED CUCKOO SURVEYS ALONG THE MIDDLE RIO GRANDE, NEW MEXICO**

S.D. MOORE and D.D. AHLERS, Bureau of Reclamation Technical Service Center, Denver, CO 80225, and V. JOHANSON, SAIC Inc., Denver, CO 80225

Various avian studies have been conducted by the Bureau of Reclamation along the Middle Rio Grande during the past 15 years. Between 1997 and the present, due to the presence of an apparently substantial population of Yellow-billed Cuckoos (*Coccyzus americanus* – cuckoo) within the basin, an increasing level of attention has been given to the species. Casual detection data gathered during Southwestern Willow Flycatcher (*Empidonax traillii extimus*) surveys between 1997 and 2005 documented numerous resident cuckoos annually. In 2006, formal protocol surveys, based on methods developed in conjunction with the Arizona Game and Fish Department and the U.S. Geological Survey, were first conducted for the cuckoo. Additionally, a GIS-based “territory” delineation methodology was developed to quantify cuckoo detections within each survey site. During this first year, 32 river miles were surveyed between the Bosque del Apache National Wildlife Refuge and Elephant Butte Reservoir and 44 cuckoo “territories” were documented. During each of the next three years, the area surveyed and number of cuckoos located increased to a high of 107 “territories” documented in 109 survey sites (89 river miles) during the summer of 2009.

## **YELLOW-BILLED CUCKOO HOME RANGE, HABITAT USE, AND MIGRATION STUDIES ON THE MIDDLE RIO GRANDE, NEW MEXICO**

J.D. SECHRIST, and D.D. AHLERS, Bureau of Reclamation Technical Service Center, Denver, CO 80225, V. JOHANSON, SAIC Inc. (contracted to Bureau of Reclamation), Denver, CO 80225, and R. DOSTER, U.S. Fish and Wildlife Service, Willows, CA 95988

The Bureau of Reclamation has been recording casual detections of Yellow-Billed Cuckoos (*Coccyzus americanus*) on the middle Rio Grande in central New Mexico since 1998. Formal surveys were initiated in 2006 in an attempt to estimate territory sizes, distribution, and abundance of Yellow-Billed Cuckoos within this system. In 2007 and 2008, a radio telemetry-based home range and habitat use study ( $n=10$ ) was implemented. In 2009, Yellow-Billed Cuckoos were captured and fitted with Geolocators ( $n = 13$ ) in an effort to document migration corridor utilization and wintering areas. Survey data indicate Yellow-Billed Cuckoo territory numbers have increased on the middle Rio Grande annually since 2006. Telemetry-based home range estimates of Yellow-Billed Cuckoos along the middle Rio Grande were determined to be variable (range: 5-282 ha), with an average size of 81.6 ha. The home ranges of these birds were not always associated with surface water, but were always associated with some percentage of native vegetation overstory or native overstory / aggregate understory vegetation type. Work continuing in 2010 will involve attempting to recapture those Yellow-Billed Cuckoos instrumented with Geolocators for data recovery and subsequent wintering ground delineation.

## **YELLOW-BILLED CUCKOO HABITAT USE AND ITS IMPLICATIONS FOR RIPARIAN CONSERVATION AND RESTORATION**

M.J. JOHNSON, U.S. Geological Survey, Southwest Biological Science Center, Colorado Plateau Research Station, Northern Arizona University, Flagstaff, AZ 86011, and J.A. HOLMES, Northern Arizona University, Flagstaff, AZ 86011

The Western population of the Yellow-billed Cuckoo (*Coccyzus americanus*), a candidate for listing under the Endangered Species Act, depends on riparian habitats for breeding. Over the past 50 years its habitat, distribution, range, and population numbers have declined substantially across much of the western United States. In the West, breeding cuckoos now occur in only a fraction of their former range. Relatively little is known about the cuckoo's patterns of habitat use at different spatial and temporal scales. Such information is needed in order to make informed decisions regarding the conservation and management of the cuckoo and its riparian habitats. For example, it is essential for determining where best to focus conservation efforts, including how and where to restore or create riparian habitat for the Yellow-billed Cuckoo. We examined cuckoo habitat use across three years and at three spatial scales (microhabitat-, macrohabitat-, and landscape-levels), within Arizona, primarily along the Lower Colorado River watershed (LCR), including one its tributaries, the Bill Williams River. We found that sites that were occupied by Yellow-billed Cuckoos generally had taller trees and higher canopies, denser cover in the upper layers of the canopy, more large trees (mostly Goodding's willow and Fremont cottonwood), and sparse shrub layers when compared to unoccupied sites. We also measured microclimate variables and found that occupied sites had generally cooler and more humid conditions. In the Verde River Watershed, occupied deciduous riparian patches were larger than unoccupied sites; in the LCR patch width did not differ between occupied and unoccupied sites. Landscape features that appear to influence cuckoo distribution and abundance



include adjacent land use, and the presence of mesquite bosques. We also found that, temporally, the availability of suitable habitat can be highly variable; riparian habitat patches used for breeding can lose suitability rapidly. Given our findings, we discuss factors to be considered when planning and implementing habitat conservation and restoration for this riparian obligate.

## **TRACHEA LENGTH AND VOCAL IDENTIFICATION OF SANDHILL CRANE SUBSPECIES**

M.R. JONES and C. WITT, Museum of Southwestern Biology and Department of Biology, University of New Mexico, MSC03 2020 Albuquerque, NM 87131-0001

Three migratory subspecies of Sandhill Crane (*Grus canadensis*) occur in New Mexico: greater (*G. c. tabida*), lesser (*G.c. canadensis*), and Canadian (*G. c. rowani*). These subspecies vary clinally in size from the very large *tabida* to the small *canadensis*, but field identification is challenging. Although both *tabida* and *canadensis* are abundant in New Mexico during the non-breeding season, only *tabida* warrants conservation concern due to its much smaller global population size. We propose a novel technique to determine the subspecies composition of Sandhill Crane populations using formant spacing in vocalizations. Each note in a crane vocalization is comprised of several formants, or energy peaks in the frequency spectrum. Formant spacing is inversely proportional to the length of the sound-emitting tube. We predicted that *tabida* would have longer tracheae and correspondingly reduced formant spacing. Preliminary analyses of sonograms are consistent with this prediction. To explore this hypothesis further we measured tracheae from 20 *tabida*, 16 *canadensis*, and 3 *rowani*. Diagnostic differences between *tabida* and *canadensis* were found in body mass and culmen. However, trachea lengths overlapped, especially between female *tabida* (mean = 691.5mm; range: 614-730) and male *canadensis* (mean = 644.2mm; range: 609-677). Trachea lengths for male *tabida*(mean = 756.8mm;range: 681 - 820) and female *canadensis* (mean = 540.6; range: 392mm-614mm) were outside of the zone of overlap. Because cranes nearly always occur in flocks containing both sexes, formant spacing of at least some individuals in each flock may be diagnostic of subspecies when *tabida* or *canadensis* is present.

## **WATERFOWL BODY CONDITION AND DISPERSAL PATTERNS FOR WATERFOWL THAT OVERWINTER AT THE BOSQUE DEL APACHE NATIONAL WILDLIFE REFUGE, SOCORRO, NM**

B.E. WADLINGTON, and Z.F. JONES, Biology Department, Eastern New Mexico University, Portales, NM 88130, J.N. VRADENBURG, U.S. Fish and Wildlife Service, Bosque del Apache NWR, San Antonio, NM 87832, and D.A. HAUKOS, U.S. Fish and Wildlife Service, Department of Range and Wildlife Management, Texas Tech University, Lubbock, TX 79409

Monitoring migrating waterfowl body conditions and movements over time can be useful in their conservation and in detecting reasons for a species' decline, as the Northern Pintails have been experiencing in North America for much of the last decade. From 1999 to 2010, Mallards, Northern Pintails, and Green-winged Teal were banded and weighed, and wing chord measurements and were taken at the Bosque del Apache National Wildlife Refuge near Socorro, New Mexico. Body mass and wing chord values were used to calculate body fat content estimates that were considered synonymous with body condition for migrating waterfowl. In

addition, band recoveries and band recaptures were used to understand annual movements of waterfowl that overwinter at the refuge. Preliminary results indicate that body condition varies among species of overwintering waterfowl at the refuge. Also, annual movements of waterfowl that overwinter in New Mexico suggest that the refuge is a wintertime stopover for waterfowl from all over the North American continent. In conclusion, these data will help provide Bosque del Apache and other regional refuge managers with insight regarding the integration of wintering, breeding, and migratory habitat and food needs of wintering waterfowl in New Mexico.

#### **A YEAR ON THE DELTA AT MORGAN LAKE, SAN JUAN COUNTY.**

T. REEVES, Computer Science and Information Technology Department, San Juan College, 4601 College Blvd., Farmington, NM 87402

Observations of birds made at Morgan Lake are discussed and photographs are shown. Species encountered include: Canada Goose, Mallard, Gadwall, Green-winged Teal, American Widgeon, Northern Pintail, Northern Shoveler, Cinnamon Teal, Ring-necked Duck, Pied-billed Grebe, Western Grebe, American White Pelican, Brown Pelican, Neotropic Cormorant, Double-crested Cormorant, Black-crowned Night-Heron, Snowy Egret, Great Egret, Great Blue Heron, White-faced Ibis, Osprey, Northern Harrier, Bald Eagle, Red-tailed Hawk, Sora, American Coot, Snowy Plover, Semipalmated Plover, Killdeer, American Avocet, Black-necked Stilt, Willet, Lesser Yellowlegs, Greater Yellowlegs, Spotted Sandpiper, Long-billed Curlew, Marbled Godwit, Sanderling, Dunlin, Semipalmated Sandpiper, Western Sandpiper, Least Sandpiper, Pectoral Sandpiper, Long-billed Dowitcher, Stilt Sandpiper, Wilson's Phalarope, Red-necked Phalarope, Franklin's Gull, Bonapart's Gull, Ring-billed Gull, California Gull, Herring Gull, Thayer's Gull, Caspian Tern, Forster's Tern, Common Tern, Least Tern, Black Tern, Burrowing Owl, Northern Flicker, Common Raven, Horned Lark, Marsh Wren, Mountain Bluebird, American Pipit, Common Yellowthroat, Song Sparrow, White-crowned Sparrow, Yellow-headed Blackbird, and Red-winged Blackbird.

#### **A COMPARISON OF BURROWING OWL PRODUCTIVITY IN RELATION TO LOCAL AND LANDSCAPE SCALE FACTORS ACROSS A LATITUDINAL GRADIENT**

R.S. TREMINIO, J. GOOD, M. J. DESMOND, and G. ROEMER, Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, NM 88003, C. CAMPBELL and M. DEVRIES, Department of Geography, New Mexico State University, Las Cruces, NM 88003, and W. GOULD, Program in Experimental Statistics, New Mexico State University, Las Cruces, NM 88003

The western Burrowing Owl (*Athene cunicularia hypugaea*) has experienced population declines across their northern breeding range, however, interestingly owl numbers are increasing in the southern. Declines have been attributed to the fragmentation and destruction of native grassland due to increased agriculture, prairie dog control programs and sylvatic plague. The declines in the north and increased numbers in the south are puzzling because previous data suggests that owl productivity is higher in the northern compared to southern plains and habitat is more intact in the northern plains. During May through June 2009, we searched for burrowing owl nests at 15 prairie dog colonies within five Forest Service National Grasslands (Grand River, Buffalo

Gap, Comanche, Pawnee and Kiowa-Rita Blanca) from New Mexico/Texas to South Dakota. All nests were monitored weekly until the nest attempt was terminated or juvenile owls fledged. We are using satellite imagery to investigate the effect of local and landscape factors on owl productivity across a latitudinal gradient. In 2009 we monitored 376 nests across 61 colonies on our five national grassland study areas. The mean number of fledglings/nest was 1.8 for Grand River (SD), 2.0 for Buffalo Gap (SD) and 3.2 for Pawnee (CO), 1.8 for Comanche (CO) and 2.1 at Kiowa-Rita Blanca (NM/TX). Nest failure was 34.6% at Grand River, 46.8% at Buffalo Gap, 20.0% at Pawnee, 56.7% at Comanche, and 46.7% at Kiowa-Rita Blanca. Causes of nest failure were not definitive, however in most cases, the loss of the clutch suggested nest predation. Suspected nest predators include badgers, skunks and bullsnakes. Preliminary results for local and landscape factors effect on productivity will be discussed.

### **PREY SELECTION IN MIGRATING SHARP-SHINNED HAWKS**

J.P. DELONG, Department of Ecology and Evolutionary Biology, Yale University, New Haven, CT 06520, S.W. COX and N.S. COX, Rio Grande Bird Research, 4426 San Isidro NW, Albuquerque, NM 87107, Z.M. HURST, Department of Wildlife and Fisheries Sciences, Texas A&M University, 210 Nagle Hall, College Station, TX 77843, and J.P. SMITH, HawkWatch International, 2240 South 900 East Salt Lake City, UT 84106

The energetic challenges of migration make acquiring food before or during migratory flights a crucial component of the migratory strategy. Many ridge-migrating raptors opportunistically forage while traveling, but prey selection strategies, and the impact of prey availability on migratory strategy have rarely been investigated. One of the reasons for this is that tools to identify prey selection in migrating raptors have not been available. We introduce an approach for identifying prey selection of migrating hawks - gene matching - and use it to quantify prey selection patterns in Sharp-shinned Hawks (*Accipiter striatus*) migrating through the Manzano Mountains of central New Mexico. Migrating hawks were captured at Capilla Peak, and prey feathers were collected from the toes and talons of their feet. DNA extracted from these feathers was matched to DNA from reference feathers. Prey species were identified from 50 samples. Prey availability was derived from concurrent mist-netting of small birds in the Capilla Peak area. Prey selection was then compared to data on prey availability. Sharp-shinned Hawks took a range of avian prey types, predominantly thrushes and sparrows. They selected large prey species and in some cases species uncommon at the elevation of the Capilla Peak area. Also, female hawks took larger prey than male hawks. These results indicate that prey selection in migrating hawks can be studied, and that foraging strategies of migrating hawks may involve opportunistically targeting the most energetically profitable prey.

### **FALCONS AS NEIGHBORS, PART II: THE UNUSUAL 2009 OBSERVATIONS OF NESTING AMERICAN KESTRELS IN ELDORADO AT SANTA FE, NEW MEXICO**

D.W. STAHLCKER, Eagle Environmental, Inc., 30 Fonda Road, Santa Fe, NM 87508

American Kestrels (*Falco sparverius*) began to nest in the nest boxes I provided on my 0.7 ha lot when I moved to Eldorado at Santa Fe (15 km south of downtown) in 1995. They nested 12 of 14 years in the “yard” territory, and 10 of 12 years in a nearby greenbelt. In 2009 the female in the “greenbelt” territory had had an approximately 50:50 mix of brown female and off-grey wing

coverts; her folded wing gave a visual impression of a faded, partially male plumage. She initiated incubation in late May, 5 weeks later than the “yard” female. Only two young fledged from each box, half the 2004-2008 average (3.9 fledglings/attempt,  $n = 8$ ). Perhaps due to the plumage of the “greenbelt” female, unusual mate interactions were documented and will be described.

### **RESPONSE OF WINTER SPARROWS TO A SEED MANIPULATION EXPERIMENT**

M. J. DESMOND, Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, NM 88003, and C. MENDEZ-GONZALEZ and L. ABBOTT, Department of Animal and Range Sciences, New Mexico State University, Las Cruces, NM, 88003

We examined the influence of seed manipulations on winter sparrow abundance and community composition in desert grasslands of southwestern New Mexico over 4 winters. Manipulations were conducted in open grasslands (2003-2005), and shrub encroached grasslands (2005-2007). We established 30, 0.9 ha plots (300 x 30 m). Our experiment was designed with four treatments (A, B, D, E) with two variables: seed diversity and seed amount, and a control, and six replications. Treatment A was a five seed mixture applied at a rate of  $20 \text{ kg} \cdot \text{ha}^{-1}$ . Treatment B was the addition of the same mixture at a rate of  $40 \text{ kg} \cdot \text{ha}^{-1}$ . Treatment D was the addition of  $20 \text{ kg} \cdot \text{ha}^{-1}$  of sand dropseed. Treatment E was the addition of sand dropseed at a rate of  $40 \text{ kg} \cdot \text{ha}^{-1}$ . In open grassland birds exhibited a strong response to seed abundance and seed type with highest avian abundance on plots with the most seed. In shrub encroached grasslands, the relationship was less clear and avian response was not related to seed abundance. Avian community composition was similar between years within grassland types but was more diverse in the shrub encroached grasslands.

### **THE EFFECTS OF FIRE AND GRAZING ON AVIAN ABUNDANCE AND DIVERSITY IN AN ARIZONA OAK SAVANNA**

C.T. NICHOLS and Z.F. JONES, Department of Biology, Eastern New Mexico University, Portales, NM 88130

Following the 2002 occurrence of the 37,000 ha Ryan Fire in southeastern Arizona, we established sixteen (eight each in burned and unburned habitat) 4-ha plots to study the impact of fire on an oak-savanna avian community. Plots were sampled for grassland height and cover, tree cover, and avian abundance and diversity. By 2008, the herbaceous vegetation was taller on burned plots (33.34 cm) than unburned plots (29.3 cm), and the tree canopy cover was less on burned plots (8%) than unburned plots (12.5%); however, grazing did not influence any of these variables except grass height. In 2003, there was a drastic difference in average herbaceous vegetation cover between burned (8%) and unburned plots (77%), but that difference was gone by 2008 (burned 81% and unburned 82%). Species richness and total abundance were not different between burned and unburned, or grazing and ungrazed, plots. However, 3 types of species responses to the fire were observed; no response ( $n = 2$ ), positive response ( $n=8$ ), and negative response ( $n=5$ ). Overall, the Ryan Fire has apparently resulted in a long-term decrease in percent tree canopy cover, and short-term negative effects on the herbaceous vegetation. For the avian community, the Ryan Fire and grazing altered species composition, but had little effect on richness and abundance.

## **RESPONSES OF BIRDS TO CONTROL OF BIG SAGEBRUSH NEAR HUERFANO MOUNTAIN, SAN JUAN COUNTY, NEW MEXICO**

C.G. SCHMITT, P. O. Box 267, Kirtland, NM 87417, and D.W. STILL, Department of Plant Sciences and Technology, California State Polytechnic University, Pomona, CA 91786

Point count surveys of birds were conducted during May and June of 2004, 2005, and 2006 to investigate their responses to control of big sagebrush (*Artemisia tridentata*) near Huerfano Mountain, San Juan County, New Mexico. The estimates of abundance of birds in an area of big sagebrush (control area) were compared with two other areas of big sagebrush that had been subjected to application of tebuthiuron 12 years (intermediate area) and four and five years (treatment area) prior to this study. Thirty-five species of birds were recorded during these investigations, 23 species on the control area, 29 species on the intermediate area, and 25 species on the treatment area. Application of tebuthiuron resulted in significant reductions in the abundance and cover of big sagebrush. These changes were characterized as a change from a shrub dominated habitat toward more of a grassland habitat with fewer shrubs. Big sagebrush habitats subjected to application of tebuthiuron had significantly lower abundances of three sagebrush obligates, Sage Thrashers (*Oreoscoptes montanus*), Sage Sparrows (*Amphispiza belli*), and Brewer's Sparrows (*Spizella breweri*) and significant decreases in two species, Scaled Quail (*Callipepla squamata*) and Say's Phoebe (*Sayornis saya*) that are not particularly dependent on big sagebrush. Six species, Mourning Doves (*Zenaida macroura*), Horned Larks (*Eremophila alpestris*), Northern Mockingbirds (*Mimus polyglottos*), Vesper Sparrows (*Pooecetes gramineus*), Lark Buntings (*Calamospiza melanocorys*), and Western Meadowlarks (*Sturnella neglecta*) were recorded in significantly higher numbers in areas subjected to application of tebuthiuron.

## **BREEDING BIRD RESPONSES TO RANGELAND RESTORATION IN SOUTHERN NEW MEXICO**

J.M. COFFMAN, Department of Biology, New Mexico State University, Las Cruces, NM 88003

All across the southwestern U.S., shrub encroachment has replaced large tracts of open grasslands. Restore New Mexico, a partnership with the Bureau of Land Management, private land owners, and conservation groups has enacted a plan to remove shrubs from invaded areas within New Mexico. The BLM began applying herbicides to shrublands in the early 1980s and has recently increased the frequency and amount of land treated. A pilot study was conducted in the summer of 2009 to review survey sites and identify common species and their abundance. Black-throated Sparrows and Northern Mockingbirds were identified as the most common species. The data collected was used to design a study that captured avian habitat selection associated with the transition from shrub dominated communities. A chronosequence of treated areas ( $n = 18$ ) within southern New Mexico was selected from 1984-2007. These sites will be surveyed in the summer of 2010.

## **TRACKING WATER RESOURCE USE BY MIGRANT AND RESIDENT BIRDS IN THE SONORAN DESERT USING STABLE ISOTOPES**

T.C. HYDE and B.O. WOLF, Biology Department, University of New Mexico, Albuquerque, NM 87131

Water is a limited resource in desert ecosystems therefore animals must rely on water found in food (i.e. insects, fruit and seeds) or drink from a permanent source of water. In the Sonoran Desert of Arizona, the Department of Game and Fish maintains permanent water tanks as a resource for big-game. We were interested in the reliance of migratory and resident birds on these water resources during the spring and summer. We enriched the water in tanks on the Kofa National Wildlife Refuge with deuterium and sampled blood from the bird community to track the use of these water resources. Because deuterium is found in low abundance in the environment, birds that use tanks will have elevated levels of deuterium in plasma. We sampled 802 birds of 50 species (25 sp residents and 25 migrants) at distances from the water holes ranging from 2 to 900m. We found that tanks were used by doves and quail, and some resident passerines. Neotropical migrants, in contrast, largely ignored this resource during spring migration.

## **POSTERS**

(alphabetical by author)

### **SOUTHWESTERN WILLOW FLYCATCHER STUDIES WITHIN THE MIDDLE RIO GRANDE, NEW MEXICO**

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The Bureau of Reclamation has been conducting Southwestern Willow Flycatcher (*Empidonax traillii extimus*) studies within the Middle Rio Grande since 1995. These studies have included extensive surveys and nest monitoring within 130 miles of the Middle Rio Grande. Since 1995, a significant increase in the number of Southwestern Willow Flycatcher territories has been documented. In 1995, Reclamation documented 14 territories within the study area; by 2009 a total of 369 territories were found. The greatest increase has occurred within the exposed pool of Elephant Butte Reservoir. Nearly 80 percent of all flycatcher territories have been found within native (*Salix spp.*) dominated habitats, however approximately 37 percent of their nests have been physically constructed in exotic saltcedar. No statistically significant difference ( $P>0.05$ ) in nest success or productivity was detected when evaluating exotic vs. native nest substrate or dominate vegetation within the territory.

**YELLOW-BILLED CUCKOO HOME RANGE, HABITAT USE, AND MIGRATION STUDIES ON THE MIDDLE RIO GRANDE, NEW MEXICO.** D.D. AHLERS and J. D. SECHRIST, Bureau of Reclamation Technical Service Center, Denver, CO 80225, V. JOHANSON, SAIC Inc. (contracted to Bureau of Reclamation), Denver, CO 80225, and R. DOSTER, U. S. Fish and Wildlife Service, Willows, CA 95988

The Bureau of Reclamation has been recording casual detections of Yellow-Billed Cuckoos (*Coccyzus americanus*) on the middle Rio Grande in central New Mexico since 1998. Formal surveys were initiated in 2006 in an attempt to estimate territory sizes, distribution, and abundance of Yellow-Billed Cuckoos within this system. In 2007 and 2008, a radio telemetry-based home range and habitat use study ( $n=10$ ) was implemented. In 2009, Yellow-Billed Cuckoos were captured and fitted with Geolocators ( $n = 13$ ) in an effort to document migration corridor utilization and wintering areas. Survey data indicate Yellow-Billed Cuckoo territory numbers have increased on the middle Rio Grande annually since 2006. Telemetry-based home range estimates of Yellow-Billed Cuckoos along the middle Rio Grande were determined to be variable (range: 5-282 ha), with an average size of 81.6 ha. The home ranges of these birds were not always associated with surface water, but were always associated with some percentage of native vegetation overstory or native overstory / aggregate understory vegetation type. Work continuing in 2010 will involve attempting to recapture those Yellow-Billed Cuckoos instrumented with Geolocators for data recovery and subsequent wintering ground delineation.

**NEW MEXICO COLONIAL WATERBIRD SURVEY – CALL FOR VOLUNTEERS**

W.H. HOWE, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, NM 87103, and H. WALKER, New Mexico Department of Game and Fish, 1 Wildlife Way, Santa Fe, NM 87507

As part of a west-wide colonial waterbird inventory being conducted across eleven western states from 2009-2011, the New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service are collaborating on a state-wide survey of colonial grebes, cormorants, herons, egrets, ibis, and gulls (if any), to occur in May 2010. The goals of this survey are to map historical and current breeding colonies in New Mexico and determine current population status of up to fifteen species of colonial breeders. We are seeking volunteers to visit colonies, determine numbers of nesting pairs of each species present using standardized survey protocols, and enter the data into the colonial waterbird database developed for this project. Mileage and lodging costs will be reimbursed if needed.

**WATERSHED RESTORATION ON KEWA TRIBAL LANDS**

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The Kewa Natural Resources Department (NRD) has been active since 2004 and has launched a watershed-level restoration strategy for the tribe's natural resources. Biological and hydrological features include two major watersheds (the Rio Grande and Rio Galisteo), two spring-fed wetlands, 525-ha of bosque, four upland vegetation communities, and a diversity of wildlife. One of the key natural features is a 120-ha perennially spring-fed wetland complex that hosts a diversity of marsh birds, waterfowl, passerines, and raptors, as well as having cultural importance for the tribe. To our knowledge, the wetland complex is the largest naturally

occurring wetland ecosystem along the entire Rio Grande Valley (Cliff Crawford, pers. comm. 2005) and includes what is likely the lowest elevation fen in the western U.S. Species of concern known to use the wetlands include northern leopard frogs and migratory willow flycatchers and yellow-billed cuckoos. In riparian areas, the Kewa NRD is restoring native communities for the benefit of Rio Grande silvery minnows, Southwestern willow flycatchers, and other riparian species. This includes the removal of over 445-ha of salt cedar and Russian olive and the creation of 1.7-km of backwater channels at 6 sites. Upland resource management has focused on soil erosion and livestock grazing issues for the benefit of range, forestry, and upland wildlife resources, such as gray vireos, burrowing owls, and Gunnison's prairie dogs. We are implementing a large-scale composting and a rest-rotation grazing demonstration site to improve the economic viability of restoration activities for the tribe.

### **A LANDSCAPE-LEVEL GIS PRIORITIZATION OF PLAYA LAKES FOR CONSERVATION IN ROOSEVELT COUNTY, NM**

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In Roosevelt County, New Mexico there are 1,694 playa lakes totaling 3,582 potential acres of surface water, but roads, agricultural development, and wind turbine arrays threaten playa lake use by waterfowl that depend upon them for overwinter survival. These disturbances can also lead to playa lake deterioration directly, and ultimately reduce the number of lakes available for waterfowl in the region. Using GIS to prioritize individual playas for conservation we assessed the effects of wind farms, roads, and agriculture on playa usage by waterfowl. In particular, we identified playa lakes in close proximity to manmade disturbances, and used this information to delineate which playas are likely to be most beneficial to waterfowl while simultaneously requiring the least amount of active management. Around 22% of the playas in Roosevelt County were impacted by two separate wind farms and were removed from further analysis. The 20 largest of the remaining 1,328 playa lakes were further evaluated for proximity to roads and agricultural developments, and led to the identification of five playas of high conservation value to waterfowl. Finally, we considered which of these five playas were located in a direct flight path between regional National Wildlife Refuges. The end result of this GIS-based landscape-level analysis identified two playa lakes of extremely high conservation value and a total potential surface area of 436 acres. We have attempted to demonstrate one way in which the use of GIS evaluation combined may be used to assist wildlife managers in making cost-effective resource decisions.