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**Abstracts of papers and posters presented at the scientific sessions**  
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BEARDMORE, CAROL. Sonoran Joint Venture, U.S. Fish and Wildlife Service, 2321 West Royal Palm Road – Suite 103, Phoenix AZ 85021, carol\_beardmore@fws.gov. • **The Sonoran Joint Venture: A binational bird conservation program.**

The Sonoran Joint Venture is the first “all-bird” Mexico-U.S. conservation partnership. Our area includes more than the Sonoran Desert. It extends from the Mogollon Rim in Arizona to the Salton Sea; it includes all of the Baja Peninsula and the Sea of Cortez; and it reaches to the Mexican states of Sonora and Sinaloa. Our goals and objectives are taken from the four major bird initiative’s conservation plans. We work in the areas of research, monitoring, habitat restoration, outreach, education, professional training, and avitourism. Some of our high-profile projects, such as cienega restoration, rail-survey training, and local community participation on the Colorado River delta, will be discussed. We hope that the Sonoran Joint Venture will be a model for other similar cross-border conservation partnerships.

BEARDMORE, CAROL. Sonoran Joint Venture, U.S. Fish and Wildlife Service, 2321 West Royal Palm Road – Suite 103, Phoenix AZ 85021, carol\_beardmore@fws.gov. • **Continental-scale bird assessment and objective setting: The Partners in Flight North American Landbird Conservation Plan.**

Well over a thousand bird species are being assessed at a continental scale to provide data for setting population objectives for the Partners in Flight Landbird Conservation Plan. A team from Canada, the United States, and Mexico has been collaborating to compile and analyze data for the plan, due to be available in fall 2003. The assessment process is the one used by Partners in Flight for the past 12 years; however, many changes have been made to take into account new data, additional species, and new analyses. Continental population-size estimates have been made for these species, which have allowed quantitative objectives and targets to be calculated. Avifaunal biomes revealed by cluster analysis are used to present objectives. The new PIF Watch List will be discussed, as well as the relatively new concept of stewardship species.

BRODHEAD, KATHERINE M. Department of Earth Sciences, Montana State University, Bozeman, MT 59717, kbrodhead@montana.edu. • **Spatial analysis of Southwestern Willow Flycatcher habitat in the Cliff-Gila Valley: Patterns affecting habitat selection and nesting outcome.**

The objective of the study is to characterize the spatial patterns of Southwestern Willow Flycatcher (*Empidonax traillii extimus*) breeding habitat that influence the species' distribution and that contribute to nesting outcome. The study site is in the upper Gila River Valley of New Mexico, which supports one of the largest populations of the federally endangered Southwestern Willow Flycatcher. This investigation draws from the conceptual framework of landscape ecology, with its particular focus on patterns formed by patches and corridors in the landscape. Floodplain dynamics result in a mosaic of forest patches of varying species and age, and this study assesses those patterns that contribute to optimal habitat. Analysis required completion of a digital landcover map designed to capture patch structure and canopy complexity by mapping the presence of sub-canopy and understory layers and canopy height in three classes across the floodplain. Patch and landscape-level metrics were used to: (1) model the relative importance of patch dimensions and surrounding matrix in influencing patch selection and breeding outcome; and (2) characterize differences in landscape-level parameters between areas of high and low flycatcher densities. Analysis shows that canopy heterogeneity and patch size are important indicators for patch selection and breeding success.

<sup>†</sup>DUNCAN, RUSSELL B., AND <sup>‡</sup>S.M. SPEICH. <sup>†</sup>R.B. Duncan and Associates, Endangered Species and Natural Resources Consultants, 6111 Bobcat Lane, Tucson AZ 85743-9273, rbduncan@theriver.com. <sup>‡</sup>SMS Consulting, 4720 North Oeste Place, Tucson AZ 85749. • **Movements of Mexican Spotted Owls in Southeastern Arizona: Results of a multi-year banding study.**

As part of a multi-year study of the Mexican Spotted Owl (*Strix occidentalis lucida*) in southeastern Arizona, we banded 245 owls (155 non-juveniles and 90 juveniles) from 1991–2001. As a result, we documented owl movements, including natal dispersal, in the study area's naturally fragmented forested mountains. As in other Spotted Owl banding studies, most juveniles are never seen again due to a high mortality rate. Only 16.6% (15) of the 90 juveniles that we banded were recaptured or re-sighted after initial capture. Of this total, 4 of the 15 juveniles (26.7%) had dispersed between mountains, with the remainder dispersing within their natal mountain ranges. Straight-line distances for the inter-mountain dispersal events amounted to 28, 32, 48, and 54 km, and all ended up in the nearest mountain range with suitable Spotted Owl habitat. Habitats crossed by these four owls included large areas of unsuitable habitats, like open desert and desert grassland, and also increasingly urbanized settings. We detected various types of adult and subadult movements, which included changing territories (either by choice or by being forced to move by other aggressive individuals); non-territorial floater movements; possible elevational migration; and temporary and permanent emigration in response to effects of fires. From chance band-recoveries we were able to determine causes of mortality in 4 adults and 3 juveniles. Starvation and predation are the specific causes of death that we were able to identify, and possibly collision with motor vehicles. Documented predators included Northern Goshawk (*Accipiter gentilis*), Great Horned Owl (*Bubo virginianus*), ringtail (*Bassariscus astutus*), and coati (*Nasua narica*).

FETTIG, STEPHEN M. New Mexico Breeding Bird Atlas Project, 947 Quartz Street, Los Alamos NM 87544, osprey@cybermesa.com. • **Status of the New Mexico Breeding Bird Atlas Project, focusing on the Valles Caldera National Preserve.**

The New Mexico Breeding Bird Atlas Project, Inc., is a non-profit corporation currently using volunteers and partnerships throughout the state of New Mexico to identify the distributions of breeding birds. The project uses behaviors to determine breeding status, following the standard set by the 1981

and 1986 Northeast Breeding Bird Atlas conferences. In 2002, atlas work began within the Valles Caldera National Preserve (VCNP) to provide relative abundance estimates and breeding information on the 16 New Mexico Partners-in-Flight priority species that were found during initial survey work the previous summer, as well as on other species associated with the uniqueness of the caldera, such as Wilson's Snipe, Golden-crowned Kinglet, Ruby-crowned Kinglet, Savannah Sparrow, and Eastern Meadowlark. Volunteers working 9 of 16 atlas blocks on the VCNP reported 105 bird species, of which 92 species showed evidence of potential breeding, with 55 species confirmed as breeding. Dark-eyed Junco, American Robin, and House Wren were the three most-often-confirmed species within the caldera, being confirmed in 8 or more of the 9 blocks. Of the species associated with the uniqueness of the caldera, no Wilson's Snipe or Savannah Sparrow were confirmed, while Eastern Meadowlark was confirmed to be breeding in 1 block and Golden-crowned Kinglet and Ruby-crowned Kinglet were confirmed in 2 and 4 blocks, respectively. Mountain Chickadee, American Robin, Violet-green Swallow, Hermit Thrush, and Dark-eyed Junco all have relative abundance estimates of over 0.70. Twenty-one species have relative abundance estimates below 0.02. Of the species associated with the uniqueness of the caldera, Wilson's Snipe had the lowest relative abundance at 0.034, with Savannah Sparrow at 0.051; Ruby-crowned Kinglet had the highest relative abundance at 0.51; Eastern Meadowlarks (0.024) and Golden-crowned Kinglet (0.085) hold moderately low values. Work will continue to complete all 16 blocks within the VCNP.

<sup>†</sup>FETTIG, STEPHEN M., <sup>‡</sup>BRIAN F. JACOBS, AND <sup>§</sup>RICHARD G. GATEWOOD. National Park Service, Bandelier National Monument, HCR 1, Box 1, Suite 15, Los Alamos NM 87544, <sup>†</sup>stephen\_fettig@nps.gov, <sup>‡</sup>brian\_jacobs@nps.gov, <sup>§</sup>richard\_gatewood@nps.gov. • **Initial breeding bird response to piñon-juniper woodland thinning: A watershed-scale case study from northern New Mexico.**

Piñon-juniper woodlands at Bandelier National Monument in the Jemez Mountains, New Mexico, are characterized by mostly bare ground in the interspaces between trees and by soil erosion rates of approximately 0.5 cm per decade. These conditions threaten the National Park Service's ability to protect numerous imbedded ancestral puebloan sites and were likely initiated by a history of livestock grazing, fire suppression, and drought. In an attempt to increase grass and forb cover in order to stabilize soils, the Monument initiated a restoration experiment in the winter of 1996–1997. Two adjacent 40-ha watersheds were identified. The treatment watershed was thinned by approximately 75%, with the woody material lopped and scattered as coarse mulch, while the control watershed was not changed. The treatment has been successful in increasing the grass and forb cover and in stabilizing soils to a large degree. In order to evaluate the treatment's effect on breeding birds, we conducted 10-minute avian point counts at 5 locations in each of the watersheds during 1998, 1999, 2001, and 2002. Preliminary results suggest that aerial insectivorous species may be benefiting from the restoration treatment.

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Natural Resources, osvel@u.arizona.edu. • **Concentrations of organochlorine pesticides and selenium (Se) in eggs from three species of birds from the Colorado River delta.**

Organochlorine pesticides such as DDT were intensively used in the Colorado River delta from 1960 up to the 1980s. Therefore, residual concentrations of these pesticides might still be present in the delta wetlands and might affect the region's wildlife. In addition, selenium (Se), a semi-metallic element known to cause embryonic deformities in birds, is present in elevated concentrations along the Colorado River and its delta. In this study, we monitored reproductive success of 90 nests of three species of birds (Mourning Dove, Burrowing Owl, and Marsh Wren) throughout the 2002 breeding season (April to June). We collected 25 eggs of Mourning Doves, 18 eggs of Marsh Wrens, and 8 eggs of Burrowing Owls for chemical analysis. Samples were analyzed by gas chromatography to determine organochlorine compounds and by ICP MS to determine concentrations of metals. Mean concentrations of DDT, DDE, and Se in Mourning Dove eggs were 27 ng/g, 21 ng/g and 1.6 µg/g, respectively. Mean concentrations of DDT, DDE, and Se in Burrowing Owl eggs were 23 ng/g, 22 ng/g, and 1.7 µg/g, respectively. Concentration of Se in Marsh Wren eggs was 5.3 µg/g. Levels of DDT and DDE found in these eggs were all below background levels found in eggs of various other baseline/reference species, which reflects the present disuse of DDT in the agricultural area. Se concentrations in Marsh Wrens' eggs did exceed the background level of 2 µg/g found in eggs of various other reference/baseline species. However, no correlation was found between concentrations of Se, DDT, or DDE and the nest success of the species monitored. In conclusion, there seems to be no major threat from these contaminants to the health of the species studied at the present time. However, it is important to keep monitoring the levels of these and other pesticides in birds and to continue to study the effects on their health.

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The North American subspecies of the Bar-tailed Godwit, whose population numbers about 125,000 birds, breeds in western Alaska and winters in New Zealand and eastern Australia. The great-circle distance between these sites is about 11,000 km. Through a combination of color-flagging, analyses of travel costs, and plotting of seasonal distributional records, we show that godwits engage in an elliptical migration route that entails a 25,000-km-long flight each year. This passage includes a northbound flight to eastern Asia broken into two 7,000- to 9,000-km-long legs over mostly open ocean, and a single southbound, 11,000-km-long nonstop leg from Alaska to the wintering grounds. To accomplish these flights, birds put on record fat-loads (55%) and have, at least for the southbound flight, evolved a migration system dependent on winds from predictable autumn storms embedded in the Aleutian Low pressure system.

GÓMEZ-LIMÓN, EDUARDO. Angela Peralta #61, Colonia Periodista, Hermosillo Sonora México 83156, edugomez@hmo.megared.net.mx. • **Review of some recent bird and habitat studies in Sonora.**

During the past five years there have been some opportunities to participate in and coordinate efforts directed to the study and conservation of birds and their habitats in Sonora. Most projects involve working with non-governmental organizations, conservation agencies from governments on both sides of the border, universities, bird observatories, and private land owners. The spring of 2003 marked the beginning of the fourth year in the operation of two bird banding stations under the MAPS protocol at the San Pedro River and at the wildlife refuge of Sierra Los Ajos in Cananea. The second phase of a bird survey by point counts is underway along the Santa Cruz River east of Nogales. The formation of a club of young bird watchers called *Los Halcones* has been one of the important achievements in public outreach in the region. Birding in Sonora has aroused the interest of private land owners, government agencies, and NGOs to explore the potential for this activity as an economic alternative. Surveys for specific species have been conducted and/or are underway in different habitat in Sonora. Examples include Willow Flycatcher in riparian areas in northern Sonora, Yellow-billed Cuckoo in western drainages of the state, and Clapper Rail surveys in the central coast of the Gulf of California. During the past two years a monitoring program on migratory pollinators was conducted in central and northern Sonora to determine routes and dates of Rufous Hummingbird during its migration through the state. By the end of this year, rapid habitat assessments and bird surveys focused on neotropical species will be conducted along several riparian localities in central and northern Sonora. Also, by the end of 2003, an analysis of ecological threats to selected sites within the Sonoran Desert Ecoregion in Sonora will have been completed. Observations and localities from all of these projects are being gradually transferred to the Sonora Conservation Data Center. This is an office of the state government whose goal is to process and update information for the conservation of natural resources.

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El Doctor comprises 350 ha of marshlands, mesquite, and saltcedar thickets along the escarpment that separates the Gran Desierto in Sonora from the Colorado River delta. These wetlands are maintained by freshwater springs and are the only large patch of vegetation (>1 ha) for at least 150 miles to the south, east, and west. We assessed the use of El Doctor by migratory landbirds during the spring of 2002. We operated 6 mist-nets (12 m × 2.6 m, 36 mm mesh) during 5 hours (opened at sunrise) for 3 days in every 10-day period from 1 April to 20 June. We captured 597 birds of 43 species during 20 banding days (491.5 net hours). We also documented the presence of 14 other species of migratory landbirds. Of the migrant birds detected during area surveys, 84% were observed feeding. The average capture rate was 1.81 birds per net hour (95% C.I., 0.53–3.09). The peak of spring migration was during between 1 May and 10 May, when the capture rate was 4.64 birds per net hour. The most common species migrating through El Doctor were Swainson's Thrush, Western Flycatcher, Wilson's Warbler, Willow Flycatcher, and Western Tanager. Of the birds we banded, we recaptured only 13 individuals in subsequent days. Fifty-three percent of the birds captured had fat levels <5%, and 77% had fat levels <30%. Willow Flycatchers were the birds with lowest fat levels, with 81% of the individuals with fat levels <5%. The

number of species and capture rates show the importance of El Doctor as a critical stopover station for neotropical migratory landbirds. The patterns of stay length and arrival condition suggest that birds arrive at El Doctor after crossing the Gran Desierto, then feed and rest at the site for a short time, and then continue their northbound migration.

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#### **Population trends of the Yuma Clapper Rail in the Colorado River delta, Mexico, 1999–2002.**

The Yuma Clapper Rail (*Rallus longirostris yumanensis*) is an endemic marshbird in the Lower Colorado River and its delta. The subspecies is federally listed as threatened in Mexico and endangered in the U.S. We have monitored the population of Clapper Rails in the Colorado River delta from 1999 to 2002. The monitoring program consists of call-response surveys at 20 transects (five point counts each) randomly located in the marshlands of the delta and visited twice per breeding season (March and May). The population of Yuma Clapper Rails declined 52.9% during the period of study (95% C.I., 32.3–73.4;  $p < 0.001$ ,  $\beta = 0.99$ ). However, the Ciénega de Santa Clara still maintains the largest population of the subspecies, with an estimate of 3,420 individuals (95% C.I., 2,307–4,523). These declines are associated with marshland dynamics in relation to fire. Part of the Ciénega was burned in 1998, promoting the growth of young stands of cattail. Over the past 5 years, the cattail stands have been decaying and becoming more dense, thus reducing the rails/ha they can support. At other areas, habitat has been created by drainage seepage, instream flows, and backwaters, thus showing that maintenance of a dynamic system of marshlands is critical for long-term health of populations of Yuma Clapper Rails. The continuation of a long-term monitoring program is essential for the effective management of the protected wetlands in the Colorado River delta and the conservation of the subspecies.

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<sup>†</sup>Pronatura Sonora, Final Bahía de Bacochibampo, Ap. Postal 484, Guaymas Sonora México 85400, helenair@hotmail.com. <sup>‡</sup>Pronatura Sonora, 104 Biological Sciences East, University of Arizona, Tucson AZ 85719, osvel@u.arizona.edu. <sup>§</sup>Centro de Investigación en Alimentación y Desarrollo A.C., Unidad Guaymas, Carretera al Varadero Nacional km 6.6. Ap. Postal 282, Guaymas Sonora México, 85400, jaqueline@cascabel.ciad.mx. • **Abundance and habitat affinities of Burrowing Owls in the Mexicali**

#### **Valley, Baja California and Sonora, Mexico.**

Western populations of Burrowing Owls (*Athene cunicularia*) have been declining during recent decades, and the bird is now a species of concern throughout North America. We estimated the abundance and determined the habitat affinities of Burrowing Owls during the breeding season of 2002 in the Mexicali Valley, Baja California and Sonora, Mexico. We surveyed 58 random transects (5,000 m in length) located across the study area (3,750 km<sup>2</sup>). At each transect we counted all observed Burrowing Owls, estimating the distance from the observer, and determining sex and age (adult or juvenile). At each transect we estimated the percent coverage of dominant land features. The population estimate was calculated using the program DISTANCE, and the habitat affinities were determined through a correlation analysis. A total of 300 owls were detected, with an average of  $5.17 \pm 0.77$  owls per transect, and a density of 0.14 owls/ha. The population estimate for the Mexicali Valley was 3,818

Burrowing Owls (95% C.I: 3,351–4,350). The density of Burrowing Owls was positively correlated with increased agricultural coverage and the presence of agricultural drains ( $r^2 = 0.6122$ ,  $p = 0.0354$ ,  $F_{2,53} = 2.1130$ ). Although the Colorado River delta has been degraded drastically, the development of the Mexicali agricultural valley has benefited Burrowing Owls, and now the valley maintains one of the largest breeding populations of the species.

MOORE-CRAIG, NARCA. P.O. Box 16361, Portal AZ 85632, narca@vtc.net. • **Birds of the Gray Ranch, Hidalgo County, New Mexico.**

Sprawled across the Continental Divide in New Mexico's boot heel, the Gray Ranch encompasses more than 500 square miles and most of the Animas Mountains. It lies at a crossroads for several biogeographical regions: the Rocky Mountains, Mexico's Sierra Madre Occidental, and the Chihuahuan Desert, with elements from the Great Plains and Sonoran Desert. This mix of biomes underpins the ranch's biological wealth. Although scientific investigation began with the U.S.-Mexican Boundary Survey of 1849–1856, only a few ornithologists have worked in the region over the past 150 years. Alan Craig and I have amassed data over a 12-year period, including a year of living on the ranch. Data were acquired through surveys made from 1991 to 2003, a literature search, and records from other observers. More than 300 birds have been recorded for the Gray Ranch, including virtually all of the southwestern specialties. The ranch holds the primary breeding grounds in New Mexico for Mexican Chickadee, Botteri's Sparrow, and Yellow-eyed Junco. Other notable breeding species include Mexican (Mallard) Duck, Northern Goshawk, Zone-tailed Hawk, Gould's Wild Turkey, Montezuma Quail, Spotted Owl, Magnificent Hummingbird, Gila Woodpecker, Greater Pewee, Olive, Lucy's, and Red-faced Warblers, Painted Redstart, Hepatic Tanager, and Grasshopper Sparrow. Ferruginous and Rough-legged Hawks, Sprague's Pipit, Baird's Sparrow, and Chestnut-collared Longspur winter in the extensive grasslands.

JERRY R. OLDENETTEL. 499 Farm-to-market Road, Socorro NM 87801, borealowl@aol.com. • **Audio analysis of the calls of King and Clapper Rails.**

This paper presents an analysis of King Rail (*Rallus elegans*) and Clapper Rail (*R. longirostris*) *kek* notes and *kek* series. A total of 7 Clapper Rail examples and 4 King Rail examples available on commercial CDs were analyzed. The data were digitized with Peak, a commercial sound-manipulation program, and analyzed with Canary, an audio analysis program from the Cornell Laboratory for Ornithology. The data show detectable, consistent differences between King and Clapper rail calls and, additionally, significant differences among the various subspecies of Clapper Rail. This analysis is applied to calls recorded at the north end of Willow Lake in Malaga, Eddy County, New Mexico, during spring 1999 to support the first King Rail record for New Mexico (NM BRC #2002-02).

†REEVES, TIMOTHY, AND ‡JOHN HANSEN. †CIS Department, 4601 College Boulevard, San Juan College, Farmington NM 87402, treeves@sisna.com. ‡U.S. Bureau of Land Management, Farmington Field Office, 1235 La Plata Highway, Farmington NM 87401. • **Bird point count surveys on BLM lands in San Juan County, New Mexico.**

Beginning in 1999, we began long-term monitoring of bird populations on Bureau of Land Management (BLM) holdings in the BLM Farmington District. These studies are funded by the BLM, the project was developed by the second author, and the field work was conducted by the first author. The purpose of

our work is to determine the kinds of bird species and their relative abundance within specific habitat types. These data will be useful in assessing the impacts of habitat improvement projects, oil and gas development, or natural perturbations (fire, drought, or flood). The eight point-count surveys are located in San Juan County as follows: Route 1, Mount Nebo (pinyon-juniper woodland, with some ponderosa pine and Douglas-fir, 23 stops); Route 2, Devil's Canyon (ponderosa pine forest and pinyon-juniper woodland, walking survey with 26 stops at 250m intervals); Route 3, Pump Canyon (cottonwood and salt-cedar riparian corridor in pinyon-juniper woodland, walking survey with 14 stops at 250m intervals); Route 4, Pump Mesa (pinyon-juniper and Tebuthiuron-treated vs. control big sagebrush, 24 stops); Route 5, Huerfano South (Tebuthiuron-treated big sagebrush, 11 stops); Route 6, Angel Peak (untreated big sagebrush, 10 stops); Route 7, Blanco Trading Post (untreated big sagebrush); Route 8, Huerfano North (Tebuthiuron-treated big sagebrush, 12 stops). Bird surveys were conducted primarily in the breeding season (early summer) and winter, with one survey each in late summer / fall and late winter / early spring. Bird species and numbers of individuals heard and seen during five-minute stops along the survey route were recorded. Vegetation sampling (conducted separately) was performed at each stop by pace-point-transect. Our presentation includes bird species encountered, number of individuals of each species, and the number of stops where each species was encountered. Bird data are correlated with habitat type and vegetation data. The effects of the 2002 drought are discussed.

STAHLECKER, DALE W. Eagle Environmental, 30 Fonda Road, Santa Fe NM 87508, dwseagle@cybermesa.com. • **Santa Fe “Cool”: Curve-billed Thrasher biology at the altitudinal range limits for the species.**

I followed the progress of 300 nesting attempts in 30–45 Curve-billed Thrashers (*Toxostoma curvirostre curvirostre*) territories in Santa Fe County, New Mexico, during the 2000–2003 breeding seasons. I searched for active thrasher nests and territorial adults in four distinct habitat/disturbance types. Thrasher territories were most dense (8 ha/territory) within a 125 ha study area in Eldorado, a moderate-density (~1 ha/lot) subdivision in pinyon-juniper-cholla savanna, intermediate in adjacent undeveloped 95 ha cholla floodplain (16 ha/territory), and lowest in an adjacent 95 ha pinyon-juniper-cholla savannah (48 ha/territory) and a 135 ha cholla floodplain (90 ha/territory) 15 km from development. Eldorado thrashers also nested earlier, laid more eggs, and fledged more young than did those in pastureland. Nesting was fairly synchronized, with peaks in active nests in late April to early May, in mid-June, and in mid- to late July. Approximately 50% of pairs attempted a third nesting attempt, whether or not successful in earlier efforts. Second clutches were significantly larger than early spring clutches. Productivity was also positively correlated with winter (November–April) precipitation. “Palmer’s” Curve-billed Thrasher Thrashers (*T. c. palmeri*) in Arizona’s Sonoran Desert have been reported in greater densities (2–4 ha/territory) but have smaller clutches (2.7 eggs per clutch,  $n=101$ ) than do those in Santa Fe County (3.3 eggs/clutch,  $n=261$ ). South Texas *T. c. curvirostre* have been reported in similar densities to *T. c. palmeri* in Arizona and have the largest clutches (3.8 eggs per clutch,  $n=67$ ). Eldorado thrashers enjoy the benefits of supplemental food, irrigated lawns and gardens, and greater availability of water, but they also must deal with both native and domestic predators (dogs, cats, children). Probable persecution of snakes within the subdivision may also benefit thrasher productivity.

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<sup>‡</sup>Eagle Environmental, 30 Fonda Road, Santa Fe NM 87508, dwseagle@rt66.com. • **Status of a disjunct Common Black-Hawk population in southeastern New Mexico.**

We monitored a disjunct population of Common Black-Hawks (*Buteogallus anthracinus*) along the Rio Hondo, Rio Ruidoso, and Rio Bonito in Lincoln County, New Mexico, during the 2002–2003 breeding seasons. This area is 250–300 km from the core of the species' U. S. range in southwestern New Mexico and southeastern Arizona. An apparently stable population of 10–12 pairs occupied 70 km of riparian corridor that is mostly privately owned. We monitored nesting efforts of six pairs in both years. Only three young were fledged in two successful nests in 2002. All six nests had eggs or young in June 2003. Inter-territory distances are greater than in other areas where this species has been studied. Impacts of human activities and the future of this population will be discussed.

WETHINGTON, SUSAN M. Arizona-Sonora Desert Museum, P.O. Box 1125, Patagonia AZ 85624, swething@dakotacom.net. • **Comparing hummingbird diversity, abundance, and productivity in a mature riparian forest with the surrounding mesquite grasslands.**

In 2002, a hummingbird monitoring project was started with the following goals: to determine the best long-term monitoring sites for hummingbirds in the southwestern U.S., to learn how to sample their population size effectively, and to use the resulting information to preserve and protect hummingbirds. To accomplish these goals, we use geographic factors and vegetation types to locate potential sites. Bird banding was used to quantify populations, and patterns of diversity, levels of breeding activity, and stopover use during migration were used to evaluate their monitoring value. We compared the effect of vegetation type on hummingbird populations at Aravaipa Canyon, a mature riparian forest, with a site in the surrounding mesquite grasslands. Five feeders were maintained at each site, which are about 5 miles apart. No other feeders were within 2 miles of either site, and few flowers bloomed, due to drought. We banded hummingbirds once every two weeks from May through September. Eight species occurred at both sites, and there was no significant difference in abundance per banding-day between the sites. However, the number of species per banding-day differed significantly, with an average of  $3.9 \pm 1.1$  SD species at Aravaipa and  $2.6 \pm 1.3$  SD in the mesquite grasslands. Four species bred at Aravaipa, but only one in the mesquite grasslands. Because we banded a gravid female, we extended our knowledge of the breeding range of the Violet-crowned Hummingbird northward to Aravaipa. We also banded an individual that looked like a hybrid between Black-chinned and Broad-billed Hummingbirds. These data suggest that the northern range edge for both Violet-crowned and Broad-billed Hummingbirds is likely near Aravaipa Canyon and that Aravaipa Canyon should be considered for long-term monitoring.

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<sup>†</sup>sunbittern@earthlink.net, <sup>‡</sup>borealowl@aol.com. • **The New Mexico list: Then and now.**

In the 25 years since the last statewide compendium of New Mexico birds was published, 67 species have been accepted to the New Mexico list, bringing the state total to 502 species verified by specimen, photograph, or audiotape. To understand changes to the list over the last century, we analyzed growth in the list based on statewide compendia published in 1911, 1928, 1961, 1970, and 1978; these lists were adjusted to conform to current A.O.U. taxonomy and to currently accepted New Mexico species. Rate of increase has varied, generally correlated with the level of ornithological activity in various periods.

During 1912–1928, 3.1 species/year were added, this during a time of increased work by the Bureau of Biological Survey. The slowest period was 1929–1961, when only 1.4 species/year were added. The greatest rate of growth occurred 1962–1978, with 3.6 species/year added, this corresponding to the establishment of the N.M.O.S. in 1962. Since 1978, increase has been a more modest 2.7 species/year, not unexpected as the 500 threshold was approached. Increase was steady during this recent period, with at least one species added each year and roughly the same number added prior to 1990 as later. The 67 recent additions can be analyzed several ways: (a) 35 were “waterbirds” and 32 were “landbirds”; (b) 2 resulted from taxonomic splits not previously recognized, 26 were raised from hypothetical status, while 39 were newly reported (some quite unexpected); (c) 51 were verified without specimens but instead by photograph or audiotape, while 16 resulted from specimens, including 8 from salvage; (d) roughly 21 are of eastern North American origin, 17 are from Mexico, 9 are from western North America, 7 are primarily Eurasian, and 13 are considered widespread. The New Mexico Bird Records Committee was organized in 1992 to encourage documentation of records and to facilitate their evaluation. Continued growth is anticipated, and likely candidates will be discussed. Potential new species include the usual suspects (current hypotheticals, taxonomic splits, species occurring nearby), but if history is any guide, many will arrive unexpected and unpredicted.

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The purpose of our study was to determine whether Yellow-billed Cuckoos choose specific nesting habitat and if those choices influence nest-outcome. To do this we evaluated the correlations between nesting habitat and nest-site selection and nest-outcome between 1997–2002 at the scale of nest tree and surrounding nest area in a population of Yellow-billed Cuckoos in southwestern New Mexico. We first summarized nesting habitat characteristics. We then tested the hypothesis that cuckoos select nest sites with specific characteristics, by comparing known nest-site variables (nest-tree height, diameter at breast height, and tree density) with those where cuckoos were not known to nest (null site). We also tested whether cuckoos select nest habitats with similar attributes across years and across patches. To determine the correlates of cuckoo nest-success, we tested the following hypotheses: (1) Nesting habitat characteristics influence nest-outcome; (2) Precipitation and temperature influence nest-outcome; (3) Differences in survey-patch and year predict nest-outcome; (4) Differences in date of nest initiation is correlated with nest-outcome; and (5) Differences in nest-substrate (nest tree species) is correlated with nest-outcome. Most nests were placed in boxelder or Goodding’s willow. Non-native trees were used occasionally. Only variance in tree height was explained by year and patch ( $p < 0.01$ ). Habitat variables possessed no predictive power on nest-outcome. Neither precipitation nor temperature had a predictive power on nest-outcome. Variance in nest-outcome was not explained by variance in patch. With the data currently available, it is not possible to make strong statements about any correlations between nesting site selection, habitat, and nest-outcome. Only year and nest-initiation week showed strong predictive power on outcome, and this relation is difficult to interpret. Most birds show medium to strong effects of habitat. The results from this analysis could be further evidence that cuckoos are

unusual in regard to habitat selection, as they are in regard to breeding biology, or simply that better data need to be collected in order to draw any strong conclusions.