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CONFIRMATION OF THE CHIHUAHUAN RAVEN IN BERNALILLO COUNTY, NEW MEXICO

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At 0730 hrs on 26 December 1990, I found the carcass of a Chihuahuan Raven (*Corvus cryptoleucus*) beneath a tree often used by roosting American Crows (*C. brachyrhynchos*) on the grounds of the Veteran's Hospital in southeast Albuquerque, Bernalillo County, New Mexico. I delivered the specimen to the Museum of Southwestern Biology (No. 7017) where its identification was confirmed by Robert W. Dickerman, Associate Curator of the collection. He determined this Individual was an adult male based upon the plumage, the color of the mouth lining and the size of the testes. I presume the raven died while roosting among crows where it was found.

I have monitored numerous crow roosts in the Albuquerque area closely since 1987; however, this finding provided the first proof that the Chihuahuan Raven shares these roosts. Previously,

on 19 and 26 November 1990 as well as on 4 December 1990, I heard the distinctive, harsh “wrack, wrack” vocalization of this species while observing the crows assemble at dusk on the University of New Mexico (UNM) campus. The poor light available at that time of day prevented visual identification.

Confirmation of these ravens at the UNM crow roost, north of the Zimmerman library, was finally made 1991 when Larry Gorbet and I saw or heard at least seven of these birds during the dawn dispersal at 0645 hours. Returning the next morning, I observed at least 12 of the Chihuahuan Ravens and videotaped several of them perched or in flight, including their calls.

Subsequently, I tried to determine if this species was present at other major crow roosts and foraging areas in Bernalillo County. On the morning of 3 February 1991 I found 12 Chihuahuan Ravens with more than 75 Common Ravens (*C. corax*) at the Cerro Colorado Landfill west of Albuquerque. On 24 and 26 February 1991, I heard one or more of the ravens calling during the dawn dispersal of the Barelas bosque area crow roost and the San Gabriel Park area roost, respectively. On the afternoon of 26 March 1991, I observed 22 of the ravens perched tightly together at the Fairview Cemetery pre-roosting area. At least 8 others were seen or heard calling nearby. They all arrived from the direction of Albuquerque’s South Valley agricultural areas.

I did not find these ravens at the large crow roost near Coronado State Park in Sandoval County. However, access for observing this roost was difficult to obtain. Common Ravens were not seen sharing any of the crow roosts, though they have been known to do so (Goodwin, 1986).

The ravens became easier to count as the number of crows at the UNM roost diminished substantially in late March. On 5 April 1991 at least 50 of the Chihuahuan Ravens were present with approximately 500 American Crows. On 11 April I videotaped 40 to 50 ravens arriving at the UNM site at 1935 hrs. By 15 April all the crows had left, but 25 ravens continued to use the usual roost site. By 17 April all the ravens also had left the UNM site, but they continued to appear in very small numbers at the San Gabriel Park roost until 28 April 1991.

Unlike the crows, these ravens generally did not disperse from roosting sites in a cohesive manner in terms of timing or direction. They were occasionally chased briefly by individual crows and demonstrated better flying skills. I frequently observed allopreening by these ravens, suggesting the presence of mated pairs. This raises the question of whether the species

presently breeds near Albuquerque.

The only previously-published records of the Chihuahuan Raven in Bernalillo County appear to be those of Larry Gorbet for 17 Dec 1988 and 21 Jan 1989 (Amer. Birds 43:352, 1989) and of Hart Schwarz for 6 June 1990 and Aug - Nov 1990 (Amer. Birds 44:1169, 1990 and 45:139, 1991). Both observers reported two birds calling on Albuquerque's far west side. Until recently, the northern confirmed limits for the species in the Rio Grande Valley and vicinity were in the Socorro area (Bailey, 1928; Ligon, 1961; Hubbard, 1978). However, this species also has been confirmed in Valencia County, where C. Gregory Schmitt collected an immature male 6.5 miles southeast of Belen on 22 July 1981 (CGS 2310, N.M. Dept. Game and Fish Coll.). These ravens have been reported at intervals northward to Los Lunas, mainly along highway I-25. I have observed the Chihuahuan Raven also as a regular visitor to the city landfill 6 miles south of Albuquerque since 1987. The closing of this landfill in 1990 may have influenced the presence of this species in the city.

The northern range and abundance of this species has apparently fluctuated during the past century (Bent, 1946). It became common on the plains of Colorado and Kansas as buffalo hunting reached its peak by the early 1870's. These ravens retreated southward as that activity and the days of the covered wagon declined. More data are needed to determine how the distribution and abundance of this species is once again changing in the Southwest, particularly in relation to other Corvids.

ACKNOWLEDGEMENTS:

I am especially grateful to Dr. John P. Hubbard for his assistance in preparing this report; Larry Gorbet for assistance in the field; Bob Dickerman for confirming the identity of my specimen and to the U.S. Fish and Wildlife Service and the N.M. Department of Game and Fish for permits to collect crows and ravens in the state.

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1991 ANNUAL MEETING PROFESSIONAL PAPER SESSION

Twelve papers were presented at the 1991 annual meeting of the New Mexico Ornithological Society, held at the Dripping Springs Natural Area, Las Cruces, NM on 27 April. Abstracts of the papers are published here in the order of presentation.

CONTEXTS OF ANTIPHONAL DUETTING IN CANARY-WINGED PARAKEETS, *Brotogeris v. versicolurus*

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Antiphonal duetting is an uncommon form of auditory communication. Typically, the members of a pair give alternating vocalizations in such a coordinated manner that the utterance seems to emanate from just one bird. Neotropical Canary—winged Parakeets (*Brotogeris v. versicolurus*) give such coordinated duets during particular interactions among the individuals or pairs making up a flock. For five years, I studied a wild flock of Canary-winged Parakeets living in San Francisco, California to determine ecological and social contexts of their duetting. The incidence of duetting varied seasonally, corresponding with life cycle events. The parakeets duetted at all of the sites that they visited throughout the city, although duetting rates

were higher at some sites (roost tree) than others (primary feeding site). To augment the observations of the wild flock, I closely monitored the interactions among birds maintained in captive flocks. Observations of the wild flock indicated that duets occurred in competitive situations within the flock. In the captive flock, duetting rates and rates of agonistic interactions were positively correlated. Perpetrators of agonistic acts duetted more often than did recipients. Duets thus seem to function as vocal agonistic displays. Since these parakeets live in flocks in which inter-individual interactions commonly occur, a vocal means of settling disputes may be more efficient and less risky than physical displays or battles.

A PAIR-BASED DOMINANCE-SUBORDINANCE HIERARCHY IN CAPTIVE CANARY-WINGED PARAKEETS (*Brotogeris v. versicolurus*)

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Many groups of animals form dominance—subordinance hierarchies. Dominance behavior may be defined as the assertion of one member of the group over another in acquiring access to any resource that adds to the dominant individual's genetic fitness. In many species, separate dominance—subordinance hierarchies exist for males and females and the hierarchy is based on individuals, but this may not be the case for most psitticines. These birds form monogamous pair bonds that continue through the non-breeding season, and are usually maintained for life. In Canary-winged Parakeets, these hierarchies are based not on individual effort but on the coordinated efforts of the members of the pair. In addition to examining highly coordinated behaviors such as antiphonal duetting, I am looking at other aspects of intra-pair coordination. These include the degree to which high ranking pairs are coordinated in their daily routines and why certain pairs attain higher rank than other pairs. Data from two sampling methods (all-occurrences sampling of supplants and focal—animal sampling) were used to construct the dominance hierarchy and examine intra-pair coordination. Individual-to-individual supplants were the most common type (82%) and the supplanting success of one member of the pair was strongly correlated with the success of its mate.

DIURNAL FORAGING BEHAVIOR OF SELECTED MIGRATING BIRDS ON A HYPEREUTROPHIC LAKE

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This study examines Northern Shoveler, Ruddy Duck, and American Coot use of available food on Lake Holloman, a 69-hectare impounded lake that is heavily used by waterfowl migrating through New Mexico. We will describe limnological characteristics of Lake Holloman and assess the relation of its productivity to the feeding behavior of the three bird populations. Lake Holloman is the largest reservoir of permanent water in the Tularosa Valley of southern New Mexico. It was designed to receive water from the sewage treatment plant at Holloman Air Force Base near Alamogordo, NM. Lake Holloman is a brackish, highly productive lake because of continuous nutrient input from the sewage treatment plant. Vascular aquatic plants are scarce but the lake is often turbid from dense growths of phytoplankton. Zooplankton and zoobenthos are abundant as well. For spring migration 1990 (February-April) and fall migration 1990 (October-December), time-activity budgets for Northern Shovelers, Ruddy Ducks, and American Coots were recorded, with feeding behavior being of prime importance. Limnological data were collected throughout the same time span, including water quality parameters, zooplanktonic production, and zoobenthic production. Location of birds and numbers present were recorded for the three species being studied. Lake Holloman time-activity budgets will be compared to time-activity budgets from less productive lakes to see what influence hypereutrophication has on Lake Holloman’s birds. Invertebrate productivity will be related to time spent feeding by the three species. We will determine if abundance of invertebrates influences location of birds on the lake.

HABITAT USE AND FEEDING ECOLOGY OF MIGRATING CINNAMON TEAL (*Anas cyanoptera*) IN THE RIO GRANDE VALLEY OF CENTRAL NEW MEXICO

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Habitat use and feeding habits of spring (February-May 1990) and fall (August-November 1990) migratory Cinnamon Teal were investigated at Bosque del Apache National Wildlife Refuge, Socorro County, New Mexico. Nine managed impoundments were

divided into one or more of the following four dominant plant zones: Annuals (*Lentochlos fascicularis, Echinochlos* spp.), Saltgrass (*Distichlis stricta*), Alkali/Common three-square bulrush (*Scirous martimus, S. americanus*), and Cattail/Hardstem bulrush (*Tyoha spp., Scirpus acutus*). One morning and one afternoon driving survey were conducted weekly to determine number, sex (spring only), and general activity use patterns of Cinnamon Teal using the plant zones. Cinnamon Teal were collected from each plant zone during the 1990 spring and fall migration periods. Digestive tracts were removed and preserved for later food content analysis. Preliminary results of habitat surveys and digestive tract content analysis will be presented. Invertebrate use during the two migration periods will be emphasized.

HABITAT USE, DIET, MOVEMENTS AND HOME RANGE OF GOULD'S TURKEY IN THE PELONCILLO MOUNTAINS, NEW MEXICO

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This study documents population trends and distribution, habitat use, home range, food habits, and limiting factors of the Gould's Turkey (*Meleapris pallonavo mexicana*). The project is a continuation of the research on the Gould's Turkey in the Peloncillo Mountains of New Mexico that began in 1982. The population was estimated at 50 turkeys in 1990, which is considerably less than the 1988 estimate of 75. This is the first documented decline in the population, and coincided with a severe drought in 1989. Radio transmitters were attached to eight adult Gould's hens to document home range and habitat preference. Average yearly home ranges were large (5666 ha) compared to home ranges of other subspecies of turkey. The three riparian habitat types in the Peloncillo Mountains comprise 4.5% of the study area, and are used by turkeys at high rates relative to their availability. A microhistological analysis of turkey scat revealed that juniper (*Juniperus depeanna*) and manzanita (*Arctostaphylos pungens*) fruit constituted the majority of the turkey's diet from 1985-1990. Mustard Forbs (*Cruciferae spp.*) and pinyon ricegrass (*Piptochaetium fimbriatum*) also were utilized heavily as turkey forage.

DISCOVERY AND STATUS OF THE ARIZONA GRASSHOPPER SPARROW IN NEW MEXICO

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Although unrecorded there by early naturalists, the detection of a few Grasshopper Sparrows (*Ammodramus savannarum*) on surveys in the southern Animas Valley, Hidalgo County, New Mexico in June 1977-78 suggested the presence of a local breeding population. To investigate this, I initiated studies there in June 1987, establishing a transect (based on standard Breeding Bird Survey methodology) in homogeneous grassland habitat, with 19 stops spaced every 0.8 km (0.5 mi). Surveys were conducted in early June 1987-90. In July 1987, I collected seven breeding individuals from the transect; these proved to be Arizona Grasshopper Sparrows (*A. s. ammolegus*), a race previously known to breed only in southern Arizona and adjacent northern Sonora. The number of singing males in June showed sizable annual variations: 45 in 1987, 15 in 1988, 17 in 1989, and 30 in 1990. In August 1990 (a wet summer), 95 were counted in the southern Animas Valley (including 59 on the transect); an additional 76 were found to the east in the southern Playas Valley, where previously unreported. In New Mexico, *A. S. ammoleous* appears restricted to well—developed grasslands in southern Hidalgo County, where its distribution coincides closely with that of the endangered white-sided jackrabbit (*Lepus callotis*). The present extent of suitable habitat is unknown, but it is believed all occurs on private land. The highly localized New Mexico population could be threatened by grazing, changes in land use practices, drought, or fire.

DISTRIBUTION OF THE FLAMMULATED OWL IN NEW MEXICO

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The Flammulated Owl (*Otus flammeolus*) is found throughout the mountain regions of western North America, from southern British Columbia throughout the yellow pine (*Pinus ponderosa* and *P. jeffreyi*) regions of the Cascade Mountains, Sierra Nevadas, Rockies, and Sierra Madres through Mexico into Guatemala. A single published report showed the distribution of the Flammulated Owl throughout the western states, but excluded Arizona and New Mexico (Reynolds et al. 1987, Small forest owls). Published records exist for Flammulated Owl distribution in California (Winter), Colorado (Webb), and British Columbia (Howie and Ritcey). This paper summarizes and maps the

historical published record of the Flammulated Owl in New Mexico (approximately 100 records). It also includes nearly 200 separate locations of vocalizing male owls found in two separate owl surveys in the Sacramento Unit of the Lincoln National Forest in 1990. The distribution of the Flammulated Owl in New Mexico appears to closely follow the distribution of ponderosa pine, from its lower intermixtures with pinyon-juniper (*Pinus spp*. and *Juniperus spp.*), oak (*Quercus spp.*), and cottonwoods (*Populus spp*.) near 7000 ft (2100 m) to upper intermixtures with Douglas-fir (*Psuedotauga menziesii*), white fir (*Abies concolor*), spruce (*Picea spp*.) and aspen (*Populus tremuloides*) to 10,000 ft (3300 m).

HOME RANGE AND HABITAT CHARACTERISTICS OF THE MEXICAN SPOTTED OWL IN THE SOUTHERN SACRAMENTO MOUNTAINS, NEW MEXICO

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The Mexican Spotted Owl (*Strix occidentalis lucida*) is a candidate for listing as a threatened species by the U.S. Fish and Wildlife Service. It inhabits wooded canyons in mountain ranges, from southern Colorado and Utah south through Arizona and New Mexico to western Mexico. We report on a one-year study that will determine the home ranges of individual birds and mated pairs, and the habitat characteristics of roost sites. Birds were radio-collared in the spring of 1990 and October 1990. The owls have been radio-monitored since October 1990. Birds are located by triangulation at least four times per week, and located visually at least one day per week. Preliminary data indicate that the birds roost mostly in mixed conifer areas. Home range sizes range from 284 to 1225 ha for individual birds, and from 692 to 1307 ha for mated pairs. Home range sizes for Mexican Spotted Owls from this study appear similar to those from northern Arizona.

AN OVERVIEW OF UNITED STATES FOREST SERVICE MANAGEMENT GUIDELINES FOR THE SPOTTED OWL IN THE SOUTHWEST: DOES WOODSY OWL REALLY GIVE A HOOT?

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Most of the Mexican Spotted Owls in the southwestern United States occupy National Forest lands where much of the species suitable habitat (about 60%) is managed for timber harvest. There has recently been an increase in the volume of timber removed per acre harvested, due to a silvacultural shift from less intensive, selective harvest methods (uneven—aged management), to more intensive methods (even-aged management). The USFS Regional Forester has issued management guidelines to mitigate the impacts of timber harvest on Mexican Spotted Owls. The present guidelines are a positive step, but I also find them wanting in that: 1) Management "territories" set aside for owls are based on a mean home range size, which implies that those pairs with above average home range sizes may ultimately have their natural habitat degraded. 2) Even those pairs with average home range size may be impacted since up to one-third of the area within a management territory is available for harvest. 3) Errors due to artificial (best guess) delineation of management territory boundaries could further increase impacts to pairs. 4) The prescription of a 25% smaller management territory on the Gila and Lincoln NF's (relative to other NF's) has no biological basis and may compound impacts to locally important population centers. To mitigate these problems I recommend: 1) The use of the mean plus at least one standard deviation when translating data from home range studies into management territory guidelines. 2) If any harvest is allowed within a management territory, a selective method is preferable. 3) Managers should evaluate a system of large habitat reserves as an alternative to site-by-site management.

CHILE CROPS AND BLACKBIRDS: ARE THEY RELATED?

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A 6-month survey was designed to establish the extent of damage to chile by Red-winged Blackbirds (*Agelaius phoeniceus*), Yellow-headed Blackbirds (*Xanthoceohalus xanthocephalus*), and Great-tailed Grackles (*Quiscalus mexicanus*). The objectives of this pilot study were to identify the bird species causing damage, to localize and identify damaged fields, to develop a method for analyzing the percentages of damage, and to determine a monetary value of damage. Two 6-acre fields with chile pod damage were selected for the basis of the study. Criteria for choosing the fields were size, type of chile, proximity to

water, and relative location to other crops. The comparison of the two fields established average damage rates at 7.3% and 8.8% for fields #1 and #2 respectively. Differences within field damage varied between 1.1% and 24.2% depending on location of rows. Blackbirds leaving the damaged fields were randomly collected and sampled to determine esophageal contents. Although the sampling failed to indicate which species is responsible for the damage, it is evident that blackbirds are accountable for the depredation. The estimated results reveal that over $200,000 worth of damage to chile crops can be attributed to blackbird depredations. The survey and chile pod analysis substantiate that damage exists throughout the Hatch Valley and is extensive where it occurs.

PHYLOGENY AND EVOLUTION OF GRUIFORMES

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I tested alternative hypotheses of evolution of several families of Gruiformes by superimposing morphological and biogeographic characters onto a phylogenetic reconstruction that I derived from in vitro DNA hybridization. An earlier DNA hybridization study performed by Charles Sibley and Jon Ahlquist, which was based on an incomplete subset of these taxa, suggested that there may have been a major reversal of morphological evolution in this group, such that a highly specialized group of birds (finfoots, Heliornithidae) were purported to have been ancestral to a very generalized group (limpkins, Aramidae). If correct, this would challenge parsimony in morphological and paleontological inference. My results are consistent with the traditional characters and classifications; there was no morphological reversal. On the other hand, my results are inconsistent with the earlier DNA hybridization study. To resolve this discrepancy, I am currently further characterizing gruiform DNA by sequencing and comparing the mitochondrial 12S ribosomal gene from representatives of most gruiform families. Although the new data do not unequivocally support any single phylogenetic reconstruction, they do lend limited credence to Sibley and Ahlquist’s revolutionary hypothesis that finfoots are close (but not ancestral) to limpkins.

THE BREEDING BIRDS OF LOS ALAMOS

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An atlas of the breeding birds of Los Alamos County, New Mexico has recently been completed. The atlas shows the geographic distribution of the 117 species found to breeding in the county in a five-year systematic survey. Los Alamos, although small, has a large elevational gradient (5000 to 10,000 foot elevation), and thus offers an opportunity to sample the breeding avifauna in detail for a range of habitats found extensively in north—central New Mexico. From the atlas data I have deduced species associations, species richness, and elevational distribution of the birds in the county.

HIGHLIGHTS OF THE 1991 ANNUAL MEETING

The Annual Meeting of the New Mexico Ornithological Society was held Saturday 27 April 1991 at the Cox Visitor's Center, Dripping Springs Natural Area near Las Cruces, New Mexico.

Katie Skaggs, Dripping Springs Naturalist, led a field trip to the springs in the morning.

The business meeting began at 11:00 AM with President Mary Alice Root presiding. The revisions and corrections of the bylaws were read and explained. One important change is that the officers are to be elected at the Albuquerque meeting. This proposal and other minor changes were approved by the members. The present officers have agreed to serve an additional year to facilitate the change.

Burt Lewis reported on the progress made toward the creation of a database from the NMOS Field Notes. The software program Advanced Revelation appears to be suitable for this purpose. James Taylor of Santa Fe will adapt the software using guidelines suggested by Dr. John Hubbard and Dr. Pat Melhop. Jackie McConachie of the New Mexico Museum of Natural History made suggestions and volunteered help. The membership approved the expenses involved to get the project underway. It is anticipated that eventually fees can be collected from agencies who wish to use database information. However, it will be a long-term, time-consuming project to get the field notes into the database. Several sets of the program will be available for members with PCs. Volunteers should check with Burt or Mary Alice.

Pat Snider and Jim Karo reviewed the status of the revised New Mexico Bird Finding Guide. Most of the reports are in and

have been edited by Dale and Marian Zimmerman and John Durrie. Jim Karo is preparing new maps. The project is on schedule and should be ready by Christmas. Volunteers are needed to “try-out” the trips before the final printing is done.

Jim Travis requested that professional papers on studies in New Mexico be submitted to him for publication in the NMOS Bulletin. Dis. J. David Ligon and Robert Dickerman of UNM will review submissions. The position of Editor of the NMOS Bulletin is still open.

The members approved Saturday 29 February 1992 for NMOS Annual Meeting to be held at the New Mexico of Natural History in Albuquerque.

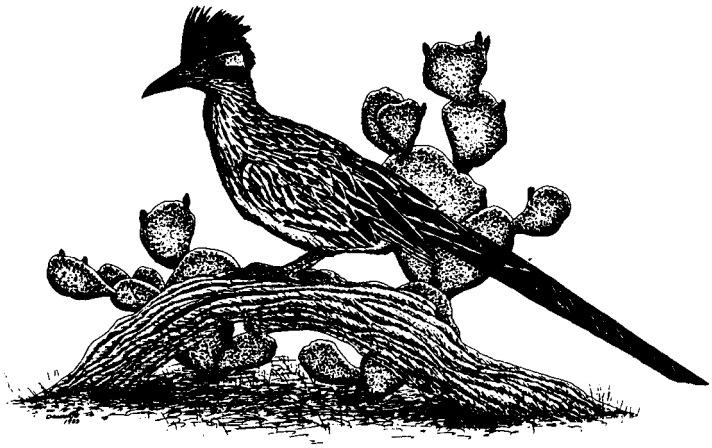
The local committee of the 1991 meeting were introduced and thanked. They were: Eleanor Wootten, Tom Wootten, Lorraine Schulte, John Shulte, Catherine Sandell, Katie Skaggs, Roger Skaggs, George Schroder, Ralph Raitt, and Peter Houde.

The afternoon paper session, co-chaired by Drs. Raitt and Houde, was held from 1:00 - 5:00 PM. Twelve papers were presented. The abstracts will appear in this edition of the NMOS Bulletin.

Fifty-one persons registered for the meeting.

The banquet and evening lecture were held at the Mesilla Valley Inn with Dr. Pat Melhop and Dr. Sandy Williams speaking on the Gray Ranch. Forty people attended.

Two field trips were held on Sunday morning. Eleanor Wootten led a group to Percha/Caballo and Cathie Sandell took a group to Lake McMillan.



COMING EVENTS

The NMOS Board of Directors will Meet Saturday 14 September at 1:00 at the Bosque del Apache National Wildlife Refuge. Board meetings are open to the membership.

The Colorado Field Ornitholgists will meet Labor Day weekend in Durango, Colorado.

The annual Fall Festival at the Bosque del Apache NWR and Socorro will be held the weekend of November 22. Roger Tory Peterson will be the guest of honor. The NMOS will participate by having an information booth in Socorro and by leading field trips to Water Canyon.

Two NMOS publications are available. Please send orders to Ross Teuber, 1612 Kentucky NE, Albuquerque, NM 87110.

NEW MEXICO BIRD FINDING GUIDE - $7.00 plus $2.00 postage and handling. This 132—page Guide describes many of the birding hot spots in New Mexico.

BIRDS OF NEW MEXICO FIELD CHECK—LIST - $.20 for 1 to 99 copies and $.l5 for 100 or more copies. This Check-list contains all the species known to New Mexico, both verified and unverified, as of September 1989.

These publications are also available in Albuquerque at the New Mexico Museum of Natural History and at the Rio Grande Nature Center.

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