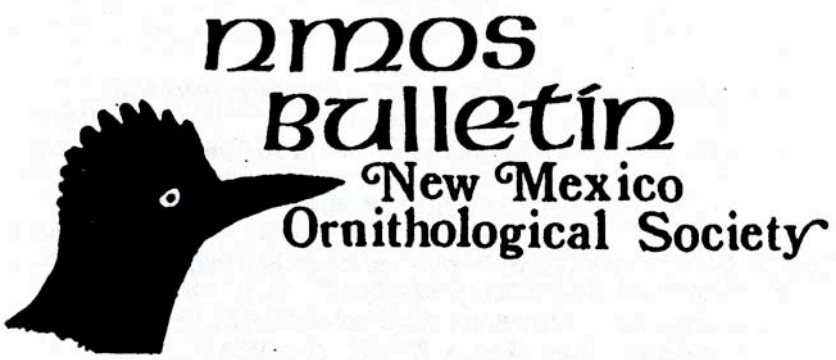


Volume 23 1995 Number 2

THE NEW MEXICO ORNITHOLOGICAL SOCIETY, INC.
P.O. Box 3068, Albuquerque, NM 87190-3068 OFFICERS FOR 1994-96

President: Dr. James Travis, 9420 Avenida de Ia Luna, Albuquerque, NM 87111; 821-0517
Vice-President: Mary Alice Root, 1108 Columbia NE, Albuquerque, New Mexico 87106; 266-0561
Secretary: Paul E. Steel, 41 Ridge Drive, Cedar Crest, New Mexico 87008; 281-4198
Treasurer: Ross L. Teuber, 1612 Kentucky NE, Albuquerque, New Mexico 87110; 265-8962
Director: Dr. W. Burton Lewis, P.O. Box 665, Los Alamos, New Mexico 87544; 662-3262
Director: Jackie McConachie, 5520 Granite NE, Albuquerque, New Mexico 87110; 268-3474
Director: Bill Willard, Post Office Box 81698, Albuquerque New Mexico 87198; 256-0274

Appointees: James Karo and Pat Stein

Editors: FIELD NOTES:
Dr. Sartor O. Williams III, 65 Verano Loop, Santa Fe, New Mexico 87505; 988-2697
Patricia R. Snider, 2435-C 45th St., Los Alamos, NM 87544; 662-3530

Editors: NMOS BULLETIN: M. A Root, P. Steel, and J. Travis

# 1994 NORTH AMERICAN MIGRATION COUNT IN NEW MEXICO

STEVE WEST, Post Office Box 2489, Carlsbad, New Mexico 88220

On 14 May1994, birders across New Mexico participated in the North American Migration Count (NAMC) for the third consecutive year. The goal of the NAMC is to provide "a picture in time" of migration on one day across the North American continent. The NAMC is conducted within a single day throughout a single county, and incorporates elements from a variety of other surveys to provide additional information on the status of North American birds. These data are especially important when analyzing numbers and distribution of neotropical migrants.

In 1994 the coverage on the count was greatly improved, with double the number of counties reporting. Table I summarizes the growth in counts over the past three years. The counties covered in 1994 were: Bernalillo, Chaves, Dona: Ana*, Eddy, Grant, Los Alamos*, Me Kinley*, Sandoval*, Santa Fe*, and San Juan. (Those with an asterisk were new for 1994.) Coverage in all of these areas could be improved with additional counters; a few counts were done by only one person. The ten county counts of 1994 produced new records in all categories due to the additional coverage. Two hundred and sixty species were found in 1994, compared with 218 in 1993, and 222 in 1992. The number of individuals more than doubled, to 33,374 compared with 15,538 in 1993.

Grant County again produced the most species with 164 (the same as 1993), followed by Chaves wtih 134, and Bernalillo with 128. Chaves County again had the highest number of individuals, followed by Grant and Bernalillo. Grant County again produced the high counts for the most species at 91, with 59 for Chaves and 24 for Eddy. Nine species were recorded on all 10 counts: Turkey Vulture, American Kestrel, Mourning Dove, American Robin, European Starling, Brewer's Blackbird, Brown-headed Cowbird, House Finch, and House Sparrow. The counts did not turn up any rarities, but many birds of local or regional interest were found.

Coverage across the state is improving, but is lacking in several areas. We have no counts along the eastern row of counties. A number of southwestern specialties are being missed. An Hidalgo County Count will provide much needed coverage, as would more coverage of the lower Rio Grande Valley. More participants in Dona Ana County, plus counts in Socorro and Sierra counties, would help to fill vital gaps.

Future counts are planned for the 2nd Saturday in May of each year. The 1995 count took place on 13 May and results will appear in a future NMOS Bulletin. Those interested in taking part in an ongoing count, or initiating one in a county not already covered, should contact the author at the above address. Also, a complete species list is available from the author by sending a stamped, self-addressed envelope.

## BERNALILLO COUNTY:

This count, organized by Tamie Bulow, had the largest number of people in the field at 22. A total of 128 species, with 4,276 individuals, was recorded, and high numbers for 21.7 species were found. (The.7 designation indicates a tie with one or more counties for a given species.) A large number (63) of Wood Ducks was found and White-winged Doves seem to continue their recent movement into the upper and middle Rio Grande Valley. Three species found on this count were not recorded in the other counties.

## CHAVES COUNTY:

Chaves County continues to be well represented and to count large numbers of shorebirds, with high counts for 14 of the 17 shorebird species recorded statewide. The large number of Snowy Plovers (285)was encouraging, as was the number of Least Terns (11). Mississippi Kites (10) continue to occur here in good numbers. The five Chimney Swifts found were apparently just passing through. The single Gambel's Quail was undoubtedly the result of a local release. A total of 134 species, with 9,388 individuals, was recorded; high numbers for 59.33 species were noted. Eleven species found on this count were not found elsewhere. Sherry Bixler compiled this count.

DONA ANA COUNTY:

Dona Ana County is one of New Mexico's prime spots for birds and it was good to get even an abbreviated count from that area. John Sproul and five others made a short foray into Dona Ana County while doing a count in adjacent El Paso County, Texas. They found 55 species and 374 individuals which produced high counts for 5.03 species. One species was unique to Dona Ana County.

EDDY COUNTY:

Eddy County continues to struggle with bad weather and a lack of observers. Very high winds made counting difficult; ten observers found 127 species, 4,231 individuals, and high numbers for 24.66 species. One hundred and fourteen Turkey Vultures tied with Grant County. Shorebird numbers were down as were numbers of most species. One exception was 100 Blue Grosbeaks. Eddy County registered high counts for 24.66 species and had seven species not found in any other county.

GRANT COUNTY:

Grant County, under the leadership of Ralph Fisher, continues to provide the highest numbers in almost all categories. Grant County produced the highest count again in 1994, as **it** has in the two previous surveys, with 164 species and 6,503 individuals. High counts were found for 91.36 species, and 22 species were not found elsewhere in the state. Species of special interest included: Northern Goshawk (2), Common Black-Hawk (16), Spotted Owl (1), Gila Woodpecker (3), Willow Flycatcher (10), Olive Warbler (7), and Abert's Towhee (7). This count continues to produce a good variety of vireos and warblers, with 20 out of the 24 species found statewide.

LOS ALAMOS COUNTY:

Los Alamos County, organized by Pat Snyder, was another addition in 1994. Although the habitat may not be as diverse as many other counties, Los Alamos was able to find 60 species and 638 individuals, with high counts for 12.5 species. It provided a good variety of numbers of montane species. Two species found on this count were not recorded elsewhere in the state.

McKINLEY COUNTY:

Ninety-six species and 1,668 individuals were recorded on the McKinley County count, including a very unusual Least Tern and a Whimbrel. Dave Cleary helped to resurrect this count which was also held in 1992. Good numbers of ducks were still present in McKinley County on count day; it appeared that vireos and warblers must peak at a slightly later time in this area. High counts for 14 species were found in McKinley while four species were unique to this count.

SANDOVAL COUNTY:

Terry Brownell characterized spring migration·in Sandoval County as "great," with 106 species and 655 individuals. Highs were noted for 4.7 species, and one species was found only on this count.

SANTA FE COUNTY:

The first Santa Fe County count, organized by Chris Rustay, found 91 species with 1,730 individuals, and recorded the high numbers for five species. This count suffered from a shortage of observers; the compiler felt that this count should normally top 100 species. No unusual species were recorded, but this count provided a good sample of a spring migration day for this county.

SAN JUAN COUNTY:

Except for a single-party report in 1993, this was the first spring count reported from San Juan County.

Coverage from this corner of New Mexico helped to complete the statewide picture of bird distribution. A total of 127 species and 3,911 individuals were recorded by 11 observers. High counts were noted for 21.7 species. A Scissor-tailed Flycatcher was certainly out-of-range as it is not expected away from the southeast. Three species were found only in San Juan County.

Received 16 March 1995

## 1995 ANNUAL MEETING REPORT

The 33rd annual meeting of the New Mexico Ornithological Society was held Saturday 6 May at the Mesa Library in Los Alamos, New Mexico, with 42 persons registering. Dr. James Travis presided at the business meeting. Reports were given by Ross Teuber, Sandy Williams, and Jackie McConachie. Sandy commended the new edition of the New Mexico Field Checklist, and commented on the accomplishments of the very active Bird Record Committee. (A sample of the form used by the Bird Records Committee is enclosed in this issue of the Bulletin.) He also reported on the "Partners in Flight" program, an international neotropical migrant program of which he is the State Coordinator. Jackie reported that about 45% of the Field Notes have been transcribed. Also, she reported that our proposal to the US Fish and Wildlife Service for a computer was turned down.

The president reported that the American Birding Association will meet in Albuquerque in January 1996 and that the NMOS has been asked to co-host a program. Members will receive information about this meeting.

The afternoon paper session was chaired by Dr. J. David Ligon and Dr. Greg Farley. Nine papers were given; the abstracts appear in this edition of the Bulletin. Jean-Luc Cartron, of the University of New Mexico, received the award for the outstanding student paper.

Dr. Kathleen Ramsey of the Wildlife Center of the Espanola Valley was the invited speaker at the banquet, held at the Los Alamos Inn. Dr. Ramsey and her staff brought along about a dozen recovered raptors whose severe injuries prevent their being returned to nature.

Two field trips were held: Saturday in Los Alamos led by Chris Rustay, and Sunday at Bandelier National Monument with Pat Snider leading. A Zone-tailed Hawk (in a scope) at Bandelier was the bird of the day.

## THE ABSTRACTS OF THE ORAL PRESENTATIONS GIVEN AT THE 1995 ANNUAL MEETING OF THE NEW MEXICO ORNITHOLOGICAL SOCIETY FOLLOW, IN ORDER OF PRESENTATION:

### DISPERSAL AND HABITAT USE IN THE MEXICAN SPOTTED OWL: WHAT WE KNOW SO FAR.

P.B. Stacey, Program in EEC Biology, University of Nevada, Reno, NV 89512.

In 1990, I began a study of dispersal and habitat use of Mexican Spotted Owls *(Strix occidentalis lucida)* in the mountains of southwestern New Mexico. This species often occurs in small and isolated populations in areas heavily impacted by logging and livestock grazing. I summarize the important results of this project to date. Radio tracking of juvenile birds indicates that individuals can move large distances over short time periods during dispersal, and that they can cross substantial areas of unsuitable habitats while moving from one range to the next. This ability would be expected if the owls exist within a meta-population structure in the southwest. Data on wintering habitats are limited, but young birds often seem to occupy areas at lower elevations than breeding adults. Analysis of roosting and foraging habitat use indicates that Mexican Spotted Owls throughout much of their range may actually be primarily a riparian species. The owls preferentially chose roosting habitats that have the greatest density of deciduous trees, even within the Douglas fir zone. We hypothesize that these areas are critical as nursery habitat to protect young owls from predators (e.g., Great Horned Owls) and they also may provide a favorable thermal environment during the summer. Most riparian areas in the mountains are used for livestock grazing, and over the last hundred years they have lost much of the original

riparian vegetation. Management of riparian areas for Spotted Owls is likely to be critical in ongoing efforts to recover this federally listed subspecies.

## THE BOREAL OWL IN THE SOUTHERN ROCKY MOUNTAINS: UNDOCUMENTED LONGTIME RESIDENT OR RECENT ARRIVAL?

Dale W. Stahlecker, Eagle Ecological Services, 30 Fonda Road, Santa Fe, NM 87505.
Russell B. Duncan, Southwestern Field Biologists, 8230 E. Broadway Blvd., Ste. W8, Tucson, AZ 85749.

Existence of breeding Boreal Owls *(Aegolius funereus)* in North America south of Canada was unknown in the 1950s, but by 1989 species residency had been documented to the southern terminus of the Rocky Mountains in northern New Mexico. Fourteen Boreal Owls documented between November 1989 and August 1993, three of which were fledged juveniles, firmly establishes the species as a breeding bird in San Juan, Sangre de Cristo, and Jemez Mountains. Response rates of Boreal Owls in occupied range were 0.18 (breeding season) and 0.17 (non-breeding season) owls/survey hr, while their congener, the Northern Saw-whet Owl *(Aegolius acadicus)* responded at rates of 0.0 (breeding season) and 0.03 (non-breeding season) in the same habitats. In other New Mexico and Arizona mountain ranges apparently not occupied by Boreal Owls, Northern Saw-whet Owls responded at rates of 0.30 and 0.36 owls/survey hr for breeding and non-breeding season, respectively. Potential habitat for Boreal Owls away from the Rocky Mountains was generally in isolated, small patches that likely would not sustain minimum viable populations. Paleontological, archaeological, and late 19th-early 20th century autumnal specimens from the southern Rockies support the theory that the Boreal Owl is a Pleistocene relict there. They remained largely undocumented because their high elevation, Rocky Mountain (Petran) sub alpine conifer forest habitat was snowbound during their most vocal period (Feb.-Apr.), detering most people from venturing into such inhospitable conditions and hindering scientific knowledge.

## ECOLOGY OF BALD EAGLES WINTERING AND BREEDING NEAR CABALLO RESERVOIR, NEW MEXICO.

Joy E. Nicholopoulos, New Mexico Cooperative Fish & Wildlife Research Unit, Department of Biology, New Mexico State University, Las Cruces, NM 88003, and Phillip J. Zwank, National Biological Survey, New Mexico Cooperative Fish & Wildlife Research Unit, New Mexico State University, Las Cruces, NM 88003.

The bald eagle *(Haliaeetus leucocephalus)* was listed as an endangered species in the United States in 1978. Intensive state and federal efforts to protect habitat and nest sites, combined with the ban of pesticides have been vital to the recovery of the bald eagle. The debate whether to downlist the southwestern population of bald eagles from endangered to threatened status has been resumed. This project was intended to determine if pool size management of Caballo Reservoir influences bald eagles wintering and breeding in the area. Caballo Reservoir, located in south central New Mexico, was censused from January 1992 through March 1993, December 1993 through March 1994, and December 1994 through March 1995. A peak number of 25 bald eagles was recorded during January of 1994.· Aerial census surveys of the lower Rio Grande valley were completed monthly during the winters. A total of 86 bald eagles were recorded for the two reservoirs and the intervening Rio Grande. Behavioral observations also were recorded during all winter periods. Foraging behavior, perch use, and food habits documentation were the major areas of emphasis during the focal animal observations. Eagles were most frequently observed perched in snags for extended periods with little or no activity. Foraging was highly focused and foraging success varied. Fish were the most commonly observed prey. Caballo Reservoir was sampled every three weeks to determine fish availability. Gizzard shad, *Dorosoma cepedianum*, were the most abundant fish in the reservoir each of the three years. A bald eagle nest active since 1988 is also a major focus of this research project. The nest has been observed from March 1993 through June 1993, March 1994 through June 1994, and currently is under observation for the 1995 nesting season. Two chicks fledged during the 1993 nest watch, a single chick hatched and fledged during 1994, and two chicks hatched this nesting season. Gizzard shad were the most frequently delivered prey item for all years. The parameters we emphasized during this project were selected and data were collected and analyzed to provide insight into the ecological necessities of bald eagles wintering and breeding near Caballo Reservoir, NM.

## PATTERNS OF V ARIATIONIN OSPREY PRODUCTIVITY ALONG THE GULF OF CALIFORNIA: THE IMPORTANCE OF LOCAL ENVlRONMENTAL CONDITIONS, LIFE HISTORY, AND TIMING OF CLUTCH INITIATION.

Jean-Luc E. Cartron, Department of Biology, The University of New Mexico, Albuquerque, NM 17131.

From 1992 to 1994, I monitored the productivity of ospreys nesting along the Sonoran Coast of the Gulf of California, in Mexico. Overall, reproductive success varied substantially between consecutive years, across nest sites, and in relation to the timing of clutch initiation. In comparison with the first two years, 1994 was characterized by a late onset of reproduction for many pairs, a high degree of breeding asynchrony, and very low productivity. The decline in productivity was primarily caused by a much higher rate of egg loss at some, but not all sites, and was at one location attributed to inadequate fish supply. In all three years combined, there was a significant relationship between nest site location and timing of clutch initiation, and early breeders were significantly more successful than late breeders. Both the high rate of nest desertions in 1994 and the general correlation between timing of clutch initiation and reproductive success were consistent with the patterns of parental commitment predicted by the life history of ospreys.

## BILL CROSSING POLYMORPHISM IN CROSSBILLS: IS THE RATIO OF MORPHS DUE TO FREQUENCY-DEPENDENT SELECTION?

Craig W. Benkman, Department of Biology, New Mexico State University, Las Cruces, NM 88003.

The direction the lower mandible curves in crossbiIls *(Loxia)* is an example of a discrete polymorphism. In Red Crossbills, *(L. curvirostra),* the lower mandible usually crosses in equal frequency to the left and to the right. I hypothesize that the 1: 1 ratio is an evolutionary stable strategy because of crossbill foraging behavior. A crossbill always orients toward closed conifer cones so that its lower mandible is directed toward the cone axis. Thus, only part of the cone can be reached easily when crossbills have few perch sites and the cone cannot be removed from the branch or twisted. Since crossbills forage in flocks and may revisit cones, an equal frequency of left-to-right mandible crossings may minimize overlap in use of cones and enhance foraging efficiency. I will provide experimental data in support of this hypothesis. I will also present data that the mandible crossing ratio is not 1: 1 in several species of crossbills that usually twist or remove cones.

## PRELIMINARY EFFECTS OF THE 1992 INCREASE IN NEW MEXICO BREEDING BIRD SURVEY ROUTES.

D.W. Mehlman, Department of Biology, The University of New Mexico, Albuquerque, NM 87131.

The number of Breeding Bird Survey (BBS) routes in New Mexico was doubled beginning in 1992. Since the BBS is the continent's primary bird population monitoring program, I examined New Mexico BBS data from 1968 to 1994 to see what effects this doubling had on cumulative number of species found, number of species found annually, and number of species surveyed adequately to detect population trends in the state. New routes added in 1992-1994 recorded 14 species not previously found on New Mexico BBS routes, bringing the cumulative species list to 296, although nine of these are not listed as actually breeding according to Hubbard (1978). Based on Hubbard's (1978) list, 37 breeding species in New Mexico have never been found on BBS routes in 27 years, although most of these are very rare or localized in the state. Annual species totals of both non-passerines and passerines showed very little change between years, suggesting that the new routes have not significantly increased the number of species typically found. Using the criteria of 10 BBS routes as being potentially sufficient to detect population trends through time, the total number of species adequately surveyed in New Mexico increased from 43 to 72, with the number of passerines adequately surveyed increasing from 33 to 55. The primary effects of the increase in BBS routes appear to have been an increase in the number of species adequately surveyed, rather than in the total number of species surveyed. Additional routes are probably warranted to increase the percentage of breeding species adequately surveyed; such routes might also pick up a few additional species as well.

## MIGRANT AND BREEDING BIRD COMMUNITY COMPOSITION AND HABITAT IMPORTANCE IN THE RIO GRANDE SYSTEM OF NEW MEXICO.

Bruce C. Thompson[1], David A. Lea1[1,2] and Raymond A. Meyer[1,3].
[1]New Mexico Coop. Fish and Wildlife Research Unit, P.O. Box 30003, Dept. 4901, Las Cruces, NM 88003.
[2]U.S. Fish and Wildlife Service Field Office, 2105 Osuna NE, Albuquerque, NM 87113.
[3]New Mexico State University, PO Box 30003, Dept. 4901, Las Cruces, NM 88003.

We compared historical and recent bird presence and performed canonical analysis of bird detection on about 480 km of the Rio Grande Corridor during 1992-1993. For 259 bird species observed, there was> 98% similarity between regularly-occurring species and bird species reported present prior to 1900. Thirty (41.7%) of 72 study transects had >= 35 bird species in composite over all surveys in all seasons. These 30 transects had varied plant community structure, but Russian olive *(Elaeagnus angustifolia)* and salt cedar *(Tamarix chinensis)* were at least codominant species in 53% and were dominant at 20% of the richest sites. Young stands of cottonwood-willow *(Populus fremontii-Salix* spp.) had relatively low bird richness values but are important recruitment for future riparian woodlands and were important to species that prefer early successional stages. Drainage channel habitat contained similar species richness to remnant riparian woodland, but bird composition was not identical. Canonical analysis indicated that use of habitat structure differed for Neotropical migrant birds in summer relative to habitat use estimated from the full component of bird species using sampled habitat. Generally, positive bird and vegetation canonical scores were sites with native woody over-story vegetation; other sites with positive bird importance scores contained mixtures of native and exotic woody vegetation. A landscape view of vegetation importance to birds in the Rio Grande Corridor should be assessed by resource managers for compatibility with priorities for maintaining other elements of nature.

## POPULATION STATUS OF LANDBIRD MIGRANTS IN NEW MEXICO AND THE FACTORS AFFECTING POPULATION TRENDS.

Wang Yong and Deborah Finch, Rocky Mountain Experiment Station, Albuquerque, NM 87106.
Steve Cox and Nancy Cox, Rio Grande Bird Research Inc., Albuquerque, NM87107.

The population status of songbirds that migrate each year between temperate breeding and tropical wintering grounds has been the subject of considerable interest, as evidence, mostly from the eastern United States, suggests that many of them are declining and that these declines have accelerated in recent years. While the research studies evaluating the population status and trends of land birds in western North America are critically needed, we investigated land bird population trends in New Mexico by using banding data from the Rio Grande Nature Center, Albuquerque, NM and data from Breeding Bird Surveys in New Mexico collected over the last ten years. Among the 104 species captured at Rio Grande Nature Center, 55% showed negative and 42% showed positively population trends. Of the 71 land bird species detected during BBS survey, 51% showed negative and 49% showed positive population trends. Banding data indicate that tanagers, flycatchers, vireos, and most warblers have declined, while several sparrow species such as Chipping Sparrow and White-crowned Sparrow have increased significantly during the last 10 years. We investigated potential factors that could result in the observed population dynamics by examining the relationship between breeding and wintering habitat and population trends, and between migratory distance and population trends. While the banding data suggest that the relationship between population status and breeding habitats agrees with the patterns from the eastern United States in that more forest-breeding and long distance migrants have negative population trends. BBS data suggest that more short distance and grassland and shrub species have declined. The relationship between the two data sets is investigated and the possible causes which result in the inconsistency between the two data sets are discussed. We evaluated the hypotheses that the population declines of migratory land birds are the result of breeding-ground events, wintering-ground events, or a combination of both by examining the relationship between population trends and age structure variations. The analyses suggest that not all migratory species respond in the same way, and that different factors may be at work in different regions of North and Latin America. Other potential factors that may contribute to migratory land bird population dynamics are also discussed.

## SHORT-TERM WEATHER EFFECTS ON FALL MIGRATION PATTERNS.

Gustav R. Bodner, Wang Yong and Deborah M. Finch,
Rocky Mountain Forest and Range Experiment Station, Albuquerque, NM 87106

Numerous studies, including diurnal and nocturnal observations on many types of birds, have indicated that daily volumes of migrating birds (numbers aloft) are affected by short-term weather patterns. Birds tend to migrate with fair weather, tail-winds and conditions that accompany tail-winds. Energetic condition (fat stores) has a1so been shown to influence migration timing, with birds generally departing as they reach a certain mass range. Migrants in unsuitable habitats appear to be less likely to wait for favorable flying conditions. We used Fall 1994 data from bird-banding at the Rio Grande Nature Center in Albuquerque, New Mexico, and from raptor counting in the nearby Manzano Mountains to examine effects of weather on short-term migration patterns. Data on 4,251 banded birds, 923 repeat events, and 4,928 raptor count were used in the analyses. We examined wind speed and direction, frontal movements precipitation, temperature, and other variables in relation with daily numbers caught or observed. We detected a significant difference on the number of raptors observed under different wind directions ($F = 3.51$, $df = 2.62$, $P < 0.05$) with more birds detected under favorable wind directions. We divided banding data into subsets by species, taxonomic group, body size, migratory distance and classification of resident breeder, winterer or migrant. We tested predictions that smaller species would be more affected by weather and that individual species and groups might respond differently to weather, perhaps depending upon their destination, seasonal timing, and habitat usage. We also predicted that numbers aloft should be related to weather in a different way than numbers netted at the ground. For example, favorable flying conditions would tend to encourage immigration and emigration and therefore reduce recapture rates; however, immigration and emigration could have opposite effects on new-capture rate. To test these predictions, we examined rate of departure and arrival using capture-recapture data, differences in catch between successive days, and early and late-season patterns.

## COMPARATIVE EFFECTS OF DIFFERENTIALLY INCLUDING BREEDING AND NON-BREEDING BIRD DISTRIBUTION IN PROJECTIONS OF SPECIES RICHNESS FOR NEW MEXICO.

Hughes, M.A.[1], B.C. Thompson[1], M.C. Anderson[2] and D.L. Garber[3].
[1]New Mexico Cooperative Fish and Wildlife Research Unit, Box 30003, Dept. 4901, New Mexico State University, Las Cruces, NM 88003-0003; [2]Dept. of Fishery and Wildlife Sciences, Box 30003, Dept. 4901, New Mexico State University, Las Cruces, NM 88003-0003; [3]Dept. of Geography, Box 30001, Dept. MAP, New Mexico State University, Las Cruces, NM 88003-0003.

Gap Analysis (GAP) is a nationwide effort to identify gaps in representation of biological diversity in areas managed for long-term protection of native species and natural ecosystems. Mammal, reptile, amphibian, avian and select invertebrate distributions are used as indicators of biodiversity/species richness for terrestrial Gap Analysis. National GAP procedures strongly suggest excluding non-breeding (migrant bird) distribution of avian species in richness estimates. The New Mexico Gap Analysis Project (NMGAP) chose to include migrant birds in estimates of species richness, believing that exclusion of non-breeding bird habitat from avian richness projection potentially underestimates the true role of some areas in supporting avian species. In New Mexico, approximately 120 of the 340 avian species are migrants and do not breed in the state. We devised a method to determine if differentially including breeding and non-breeding bird distributions in projections of species richness changes patterns of statewide biodiversity estimates. Using the ARC/INFO and IDRISI Geographic Information Systems, we visually and quantitatively compare the richness projection based only on breeding bird distribution to the richness projection based on both breeding and non-breeding bird distribution. Methods of identifying significant changes in statewide species richness patterns and preliminary results of the comparison will be discussed.

This issue of the NMOS Bulletin was published 29 May 1995