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## NOU Participation in Academy of Science Meeting

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**NOU PARTICIPATION IN  
ACADEMY OF SCIENCE MEETING**

In 1990, NOU resumed active participation in the Annual Meeting of the Nebraska Academy of Sciences. Mr. Thomas E. Labeledz, President of NOU, was chairman of the session, which was held in the afternoon of 20

April. The following papers were presented:

**SOLITARY VS. GREGARIOUS NESTING IN BURROWING OWLS.** Martha Desmond and Julie Savidge, Department of Forestry, Fisheries, and Wildlife, IANR, University of Nebraska - Lincoln, Lincoln, Nebraska 68583-0819.

In the Great Plains region, Burrowing Owls (*Athene cunicularia*) will nest as isolated pairs in abandoned badger burrows, but are most commonly associated with black-tailed prairie dog (*Cynomys ludovicianus*) towns. As part of a study investigating the advantages and disadvantages of clumped nesting in Burrowing Owls data was collected on the initial brood size and fledging success of 92 nests in western Nebraska during the spring and summer of 1989. Seventy-seven percent of the nests successfully fledged at least one young. Owls nesting in badger burrows fledged an average of five young per nest (N = 16), whereas Owls nesting in active prairie dog towns fledged an average of 3.12 young per nest (N = 60). The lowest success rate was observed among Owls nesting in abandoned prairie dog towns; these nests fledged an average .88 young per nest (N = 9). Possible explanations for the higher fledging success of Owls nesting in badger burrows include decreased predation rates and less competition for food resources.

**FORAGING BEHAVIOR IN BARN OWLS AS DETERMINED BY NEST MONITORING.** Joseph A. Gubanyi, Department of Biology, Concordia College, Seward, Nebraska 68434, and Ronald M. Case, Department of Forestry, Fisheries, and Wildlife, University of Nebraska - Lincoln, Lincoln, Nebraska 68583-0819.

Nesting Barn Owls (*Tyto alba*) were studied in western Nebraska May-September 1985-86. Monitoring an illuminated nest allowed us to determine prey delivery rate, sequence of prey species delivered, and time sequence of prey delivered to the nest. To reduce any risk of nest abandonment, nest sites were monitored only if nestlings were a minimum of three weeks old. Monitoring stations were set up at dusk,

0.5-1.0 h before adults first appeared at the nest. We observed four nest sites on 17 different nights for a total of 46.0 h. Prey delivery rates averaged from 1.7 to 5.1 prey per h. Males delivered 77% of all prey. Our data did not support the hypothesis that single-prey loaders were more likely to take larger prey as search time increases. The probability of any given prey species delivered to the nest was independent of the previous species delivered to the nest. Our data suggest that the number of fledglings can be influenced by foraging efficiency of parents. We found nest monitoring an effective means for gathering Barn Owl natural history data and recommend its use with other nocturnal species.

**INTERACTIONS BETWEEN BREEDING BIRDS AND GRASSHOPPERS (*ACRIDIDAE*) FROM NEBRASKA SANDHILLS GRASSLANDS** Anthony Joern, School of Biological Sciences, University of Nebraska - Lincoln, Lincoln, Nebraska 68588-0118.

What impact do breeding birds have on grasshopper populations and assemblages in Nebraska sandhills grasslands? Interactions among breeding bird populations and grasshoppers were examined using both observational and experimental tests. Key results include: (a) relative stability of Grasshopper Sparrow and grasshopper populations over a 4-6 year period, (b) significant alteration of avian foraging behavior dependent on brood size coupled with non-random survivorship which varied with food availability, (c) significant increase in grasshopper densities (ca. 25%) when birds were removed from an area, and (d) altered bird foraging responses in response to specific combinations of prey where birds were more efficient when prey were morphologically similar. Such combined evidence indicates the importance of these biotic intersections in the Nebraska sandhills which may structure the assemblies of species at either level.

**EFFECTS OF THE CONSERVATION RESERVE PROGRAM ON WILDLIFE POPULATIONS IN NEBRASKA** Justin W. King and

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Julie A. Savidge, Department of Forestry, Fisheries, and Wildlife, IANR, University of Nebraska - Lincoln, Lincoln, Nebraska 68583-0819.

From April to August 1989, effects of the Conservation Reserve Program on wildlife populations in southeast Nebraska were evaluated through two studies. The first project involved six 3x3-mile study sites. In the spring census, numbers of Ring-necked Pheasants (*Phasianus colchicus*) were significantly lower in areas with low CRP enrollment (<5% of the cropland in CRP) than in areas of high CRP enrollment (20% of the cropland in CRP). Western Meadowlark (*Sturnella neglecta*) numbers were not significantly different between the areas. In the summer census, Western Meadowlark, Northern Bobwhite (*Colinus virginianus*), and cotton-tail populations were not significantly different between the low and high CRP enrollment areas. The second project compared eight 120-200 acre study sites with the following cover types: CRP planted to cool-season grass, CRP planted to warm-season grass, native prairies, and sorghum. Each site was sampled for breeding birds with the fixed-width transect method and bird diversity was measured with the Shannon-Weaver index ( $H'$ ). One of the warm-season grass CRP fields had the highest  $H'$  rating (1.75), while both cropland fields had the lowest  $H'$  rating (0.0). Dickcissels (*Spiza americana*) were the most abundant species, followed by Grasshopper Sparrows (*Ammodramus savannarum*). Lastly, a nest predation study was conducted on the same eight sites. No significant differences in rates of predation between the four habitat types were indicated by the data.

RESULTS OF A PRELIMINARY STUDY SHOWING EVIDENCE OF WINTER SITE FIDELITY IN MIGRATORY SPARROWS IN NEBRASKA Thomas E. Labeledz, Division of Zoology, University of Nebraska State Museum, University of Nebraska - Lincoln, Lincoln, Nebraska 68588-0514.

Well documented is the phenomenon that

birds will return season after season to nest at the same location. Recent studies have begun to indicate a similar "winter" site fidelity for species wintering in tropical areas. Studies of winter site fidelity are lacking for species that migrate to the Great Plains of North America from more northern nesting areas.

Bird banding and recovery operations have been conducted for four winter seasons from 1986-87 to 1989-90 near Lincoln, Lancaster Co., Nebraska. Dark-eyed Junco (*Junco hyemalis*), American Tree Sparrow (*Spizella arborea*), and Harris' Sparrow (*Zonotrichia querula*) are regularly encountered species that occur on the study site only in winter. Data gathered indicate varying degrees of winter site fidelity for each species on the study area.

For Dark-eyed Juncos, over 14% have been recaptured on the study site in the same winter season; over 5% have been recaptured in two winter seasons; and .5% have been recaptured in three winter seasons. American Tree Sparrow figures are over 21%, 11%, and 3% for the same winter season, two winter seasons, and three winter seasons, respectively. For Harris' Sparrow over 17% have been recaptured on the study site in the same winter season and over 14% have been recaptured in two winter seasons.