

HABITAT USE BY MOURNING DOVES IN NORTHERN NEVADA

Keith I. Giezentanner
University of Nevada Reno
Reno, Nevada

Abstract. From May-August 1972, a study was conducted in northwest Nevada to obtain a relative index of mourning dove use in different habitat types. These habitats included two riparian habitats, two sagebrush areas, two grassland areas, three juniper stands, a ranching operation, and a shadscale area. Results indicated that the riparian habitats are the most highly preferred, but due to the small acreage of this type in Nevada, they are of limited productivity value. The major habitat for production of doves in Nevada appeared to be a mixed sagebrush juniper type with interspersals of disturbed sites for the production of annuals used as food species by doves. Adequate water is also a necessity.

INTRODUCTION

The mourning dove (*Zenaidura macroura*) is the number one game species in numbers harvested annually in the United States and the number two game bird in Nevada, second only to the chukar (*Alectoris graeca*). Although the bird has been studied extensively in the East, little work has been done in the arid areas of the American Southwest. This study attempted to add to the knowledge about this important game species and its habitat preferences in Nevada.

METHODS

From 5 May, through 29 August, 1972, a study was conducted in Washoe County, Nevada to obtain a relative index of mourning dove use in different habitat types. The various habitats were sampled by early morning counts similar to Bond's (1957) work, each lasting approximately 2 hr. These counts consisted of 10 stops, at which all birds seen or heard in a 5 min. period were recorded. To avoid overlap, the stops were spaced at 300 m intervals, twice that used by Beals (1960), and care was used to avoid recording the same bird on consecutive counts. Data obtained included the total numbers for each habitat plus the frequency of occurrence. The habitats were sampled three times during the spring and summer, i.e., in early May, early July, and late August. Each count was replicated once on consecutive or nearly consecutive mornings. These data enable comparisons of populations during different seasons as well as different habitat. Although a study of mourning dove habitats was the major objective, all species of birds were recorded.

Eleven different habitats were arbitrarily chosen as being representative of northern Nevada. These habitats included river bottomland connected with agriculture, river bottom without agriculture (both of limited acreages in Nevada), a small ranching operation in a predominantly sagebrush (Artemisia tridentata) area, a sagebrush area located in a basin floor, a sagebrush area located on the sidehills surrounding the basin, a shadscale (Atriplex canescens) area (sagebrush and shadscale deserts cover the majority of northern Nevada (Kuchler 1964)). Three different juniper (Juniperus osteosperma) stands and two burned areas were included. These burned areas were formerly sagebrush covered areas which had been burned, one in July of 1957 and the other prior to 1955.

Although measurements are not available for every count area, line intercept data for percentage shrub cover are available for the juniper areas (31%), sage areas (42%), and the grasslands (37%).

Results of these counts were computed into "Importance Values" (IV) by means of the formula (Modified from Curtis and McIntosh (1951)):

$$IV = F \times T/2 \quad \text{where}$$

IV = Importance Value
F = Frequency of the species' occurrence
T = Total number of the species seen

The total is divided by two to take into account the two counts done during each count period. As the total number of birds was considered to be of more importance than the frequency of occurrence in the amount of influence the species has on the environment, the square root of the frequency was used.

RESULTS AND DISCUSSION

Mourning doves used all habitats during the month of May; however, the grasslands were used less than the other habitats (Table 1). Immigration into the area had started to taper off as noted by constant numbers of the birds on the study areas. During early May doves begun to actively search for nesting sites and were traveling over a wide area, therefore explaining the wide dispersal of birds.

The lack of a substantial number of birds in the grasslands is explained by the lack of adequate roosting or cooing perches in these burned areas, and the lack of food materials in the area during this time of the year.

The heavy use of the riparian habitats is explained by the presence of cottonwoods (Populus fremontii) along the river, a favorite dove roosting species, by the adequate water, and the presence of food species in the area. River basins are natural migration paths for many species of birds and any late migrating doves would likely be found in association with these habitats.

Kleb's Juniper was used more heavily during May, probably due to the road running parallel to the juniper stand offering a site for the growth of annuals and weeds used as food and the three watering areas located near this area.

July counts showed a sharp increase in the usage of the grasslands while other areas remained constant or showed a slight decrease in use (Table 2). By this time of the year, many of the annuals and grass species had matured and their seeds and fruits were available as food for doves. Many of the major food species of doves in northern Nevada occur most commonly on disturbed sites (Drewien 1971). Among these, fiddleneck (Amsinckia sp.), amaranth (Amaranthus sp.), and Indian ricegrass (Oryzopsis hymenoides) are probably most noticeable in the grasslands. A close look at dove behavior in these areas indicated that the birds were using the areas as feeding sites. The birds were moving into the area shortly before sunrise and remained in the grassy areas feeding for several hours, therefore they were not being recorded in many of the surrounding habitats.

The riparian habitats and Kleb's Juniper showed little change in useage probably due to the adequate water and food in these habitats.

Table 2. The importance values (IV) of doves and total bird populations and the percentage of the total accounted for by doves, northwestern Nevada, July 1972.

Habitat Type	Dove IV	Total IV	% Doves
S-S Ranch (Riparian)	39.0	346.0	11
Dead Ox (Riparian)	69.5	351.0	20
Red Rock Road (Ranching)	5.5	210.2	3
Kleb's Junipers	13.4	64.1	21
Camp Junipers	1.0	58.3	2
Trough Junipers	0.3	64.9	-
Sage Flats	2.8	114.6	2
Sage Hillsides	4.0	153.1	3
Grass Flats	53.2	416.5	13
Grass Hillsides	60.1	216.2	23
Shadscale	2.4	70.2	3

Table 3. The importance values (IV) of doves and total bird populations and the percentage of the total accounted for by doves, northwestern Nevada, August 1972.

Habitat Type	Dove IV	Total IV	% Doves
S-S Ranch (Riparian)	11.2	204.5	5
Dead Ox (Riparian)	25.7	235.5	11
Kleb's Junipers	1.0	45.1	2
Camp Junipers	-	62.7	-
Trough Junipers	0.3	47.4	1
Sage Flats	-	83.4	-
Sage Hillsides	-	42.6	-
Grass Flats	2.4	230.7	1
Grass Hillsides	0.3	92.9	-
Shadscale	-	12.0	-

Nesting was at a peak during July and the cooing of males was beginning to taper off. This accounted for the lower figures in some habitats, as more doves were recorded by sight rather than by sound during the July and August counts and some silent birds in the denser habitats were undoubtedly bypassed. May counts relied heavily on cooing males for identification and were probably more complete counts.

August counts corroborate the opinion of the northern Nevada dove hunter. "There aren't any birds!". A few birds do remain along the riparian habitats, but most have already begun the migration over the hill to California (Table 3). Most band return from doves banded in this area indicate the doves migrate to the central valley of California or into Mexico. The summer of 1972 was extremely dry with only 38% of normal precipitation through August (NOAA, National Weather Service 1972). This drought caused early maturation of many of the major food species for doves, and by the second week in August many birds in the region had begun to migrate. This emigration was obvious in daily observations of doves in the area and in the declining success of trapping operations in the area.

Nests found in the area seemed to indicate that doves in northern Nevada nest as elsewhere, i.e., anywhere they can locate to put a flimsy nest (Gander 1928, Bent 1932, and Downing 1959). Only seven nests were found on the study area. Of these, two were ground nests, two were in sagebrush (one in a live and one in a dead plant), and three were located in junipers. Six of the seven nests were in a mixed sage-juniper habitat, and all were within 2 miles of water.

Over the entire study period, the riparian habitats were used most consistently due to the abundant water, food, and roosting sites. Although the Red Rock Road habitat also contained water in stock ponds and cottonwoods were present, it appeared more similar to the sagebrush habitats surrounding it than the river habitats. Kleb's Juniper was used more heavily throughout the season than the other juniper habitats, but all received some use until the fall migration. Grass areas were used heavily for feeding during the middle of the summer, but received little use for nesting or roosting. Shadscale habitats showed little use except during the initial stages of widespread nest searching.

CONCLUSIONS

Riparian habitats are important as migration corridors for mourning doves in northern Nevada, and have value as habitat sites during the season doves are in the area. The small acreages of this type of habitat in Nevada, however, limit its overall importance as production sites.

A mixed sagebrush-juniper habitat connected with water and disturbed sites is the major habitat for production of doves in northern Nevada. The sage and junipers are important as roosting, cooing, and nesting areas, the presence of water is an obvious necessity, and the disturbed sites for growth of annuals used as food are advantageous for optimum habitat conditions.

LITERATURE CITED

- Beals, E. 1960. Forest bird communities in the Apostle Islands of Wisconsin. *Wilson Bull.* 72(2): 156-181.
- Bent, A. C. 1932. *Life histories of North American gallinaceous birds.* Dover Publications, Inc. New York. 490p.
- Bond, R. E. 1957. Ecological distribution of breeding birds in the upland forests of southern Wisconsin. *Ecol. Monographs.* 27(4): 351-384.
- Curtis, J. T. and R. P. McIntosh. 1951. An upland forest continuum in the prairie-forest border region of Wisconsin. *Ecol.* 32: 476-496.
- Downing, R. L. 1959. Significance of ground nesting by mourning doves in northwestern Oklahoma. *J. Wildl. Manage.* 23(1): 117-118.

Drewien, G. 1971. Food habits and weight relationships of mourning doves in northern Nevada. M.S. Thesis. Univ. Nevada Reno. 32p.

Gander, T. F. 1928. Nesting habits of the mourning dove. Auk. 45:98.

Kuchler, A. W. 1964. Potential natural vegetation of the conterminous United States. Amer. Geogr. Soc., Spec. Publ. 36. 116p.

NOAA, National Weather Service, 1972. Local climatological data, Reno, Nevada. U. S. Dept. Commerce Publication. January-August. 16p.

Table 1. The importance values (IV) of doves and total bird populations and the percentage of the total accounted for by doves, northwestern Nevada, May 1972.

Habitat Type	Dove IV	Total IV	% Doves
S-S Ranch (Riparian)	56.6	460.4	12
Dead Ox (Riparian)	46.6	335.6	14
Red Rock Road (Ranching)	11.0	243.8	5
Kleb's Junipers	12.0	189.3	6
Camp Junipers	6.4	164.5	4
Trough Junipers	8.4	141.3	6
Sage Flats	13.0	230.3	6
Sage Hillsides	6.1	203.3	3
Grass Flats	-	305.6	-
Grass Hillsides	1.5	266.8	1
Shadscale	16.0	202.2	8

