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Continuation of Mourning Dove Studies in Clark County, Arkansas, with Emphasis on Cyclical Behavioral Patterns

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A Continuation of Mourning Dove Studies in Clark County, Arkansas, with Emphasis on Cyclical Behavioral Patterns

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ABSTRACT

In conjunction with the U.S. Department of Interior, Fish and Wildlife Service, the Henderson State University Biology Department has continued a study of mourning doves in Clark County, Arkansas, with emphasis on cyclical behavioral patterns. Three hundred forty-three mourning doves were baited, trapped, and banded to obtain information concerning age, sex, populations, retraps, abnormalities, migrations, trap injuries, cyclical behavioral patterns, and other factors.

INTRODUCTION

A survey was made of the mourning dove (*Zenaidura macroura*) population in an area two miles south of Arkadelphia between 1 May and 21 August 1975. Data concerning sex and age, retraps, cyclical patterns, trap injuries, other animals trapped, and abnormalities were recorded. Very little research has been done on cyclical behavioral patterns of mourning doves; therefore, this study emphasizes daily and seasonal cyclical patterns.

MATERIALS AND METHODS

During the 1 May to 1 July baiting period milo maize was piled and scattered at the banding location. A blind was built to observe the birds. Weeds were cut to make the habitat suitable for feeding. According to Booth et al. (1975), a lapse of 10-20 days occurred before the first doves were lured into traps. A one-month baiting period was allowed. In the present study, a two-month baiting period was allowed and several innovations were used to accomplish immediate luring of doves into traps without a 10-20-day delay. Instead of all traps being placed on the site at once, half the traps were placed upside down at the end of the first month, and two weeks later the other half were added. One week before banding, traps were placed on stilts to enable doves to feed beneath them. Thus the doves could become accustomed to feeding under traps before actually being captured. Doves were trapped the first day after removal of stilts from the cages.

On 2 July, the 38 traps were turned right side up on top of a small pile of milo. Traps were checked 5 to 7 times a day to recover trapped doves and to prevent casualities caused by high temperatures. Each time traps were checked the worker placed both feet in front of the two funnels of the modified Kniffen Modified trap to prevent escape of birds. Doves were removed individually from the trap, placed in a holding sack, observed, banded, and released.

RESULTS AND DISCUSSION

Three hundred forty-three mourning doves were banded during the period of 2 July through 21 August 1975. One band was removed and destroyed because the dove was drenched in the rain and had to be held over longer than the designated 24-hour holding period before it could fly successfully. No mourning doves died in traps during the entire banding season, although ground temperatures at times were as high as 115F. Frequency of trap checks accounts for lack of deaths caused by heat.

Previous studies by Keeler and Winston (1951) indicate that doves seldom eat wet milo; however, in this study doves frequently were found to eat wet grain. Other than drenching of doves, the main problem created by rain was grain scattering.

Methods for aging doves followed those of Wight et al. (1967). One hundred fifty (44%) of the 343 doves banded were after-hatching-year birds (AHY). One hundred eighty-eight (55%) were hatching-year birds (HY). Five birds (1%) were not aged because of uncertainties (Table I).

Of the 150 AHY birds, 104 (69%) were males, 24 (16%) were females, and 22 (15%) were of unknown sex. Discrepancy of females to males may have resulted from a larger female dove kill during the hunting season according to Thomforde (1972). He stated that "banding showed that females were 143% more likely to be shot than males." In his 3-year study with 2218 doves, the sex ratio was 3.84 (79%) males to 1 (21%) females, which is in close relationship to the ratio in the present study.

Once the HY birds have molted their sixth primary, many can be sexed accurately. Of the 188 HY doves trapped, 24 were sexed on the basis of plumage maturity (8 males and 16 females).

A combination of doves banded before and during the present study were retrapped and recorded. Figure 1 indicates the number of times each bird was retrapped. Table II shows the percentage of AHY, HY, and unknowns that were caught more than once.

With respect to seasonal patterns, AHY or older birds were predominant during the first 24 days (2 July - 27 July). Young or HY birds were found predominantly during the last half of the banding season (28 July - 21 August). They appeared later apparently because the majority did not come off the nest until midseason. Waning numbers of AHY birds may have been observed because of migration out of the area by unmated pairs.

Figures 2, 3, and 4 show daily patterns of HY and AHY males and females. Figure 2 shows that HY birds appeared at traps more often from 8 to 10 a.m. and from 5 to 8 p.m.; Figure 3 depicts daily patterns of males and females. Females appeared most often between 1 and 6 p.m. This behavior is believed to be related to nesting habits. According to wildlife authorities, females generally remain with their young in the early morning and evening and feed during the day. Retraps of both males and females were included in these calculations. Figures 4 and 5 show the pattern of AHY females during the first and second half of the 50-day banding period. It was observed that HY birds were numerous at the banding area on day 26, indicating they had come off the nests. Figure 4 shows overall parental care and feeding habits during the nesting period of females. Figure 5 shows females feeding throughout the day with no specific time preferred. The writers would hesitate to make a dogmatic statement concerning Figures 4 and 5 because of the small number of females involved; however, there seems to be a correlation between hatching season and daily feeding times of AHY females.

Trapping often results in injuries to doves inside traps. Of 343 mourning doves banded, 110 were injured (usually on the bends of the wings). Table III denotes injury relationships of AHY males to females and total AHY to HY birds.

In the present study, 13 doves were recovered from a previous banding operation that had taken place in the 1974 season in the Arkadelphia area. Thomforde (1972) states that a large proportion of surviving individuals return to their natal area.

Abnormalities observed by the writers are listed in Table IV. Some of these may be the result of genetic defects, whereas others may have resulted from injury. Abnormalities were recorded because (1)

the Fish and Wildlife Service requires this information and (2) the data were collected to augment the previous study (Booth et al. 1975).

Animals other than doves were observed and trapped (Table V). Grackles had a direct effect upon numbers of doves present in feeding areas. Aggressive behavior of grackles resulted in a peck dominance over doves. Eastern cottontails got into and out of traps with difficulty because of their size, and thus moved traps to different locations. Opossums got into traps and harassed birds in an attempt to capture them. Other animals seemed to have little effect upon trapping, with the exception of grain consumption.

SUMMARY

Three hundred forty-three mourning doves were trapped, observed, and banded during the present study. Data collected are summarized in Tables I through V and Figures 1 through 5 to show age and sex, retraps during this study, cyclical patterns, injuries, abnormalities, animals caught other than doves, and returns from the 1974 banding season.

It can be concluded that the number of doves observed and banded in this study has made possible the accomplishment of two primary purposes. First, the previous study by Booth et al. (1975) is augmented. More data have been collected to substantiate previous research in the area and to add meaning to the overall study. Second, knowledge has been added to the scant record of cyclical behavioral patterns of mourning doves. Information gained from this study will prove beneficial to further dove banding research.

Figure 1. Number and frequency of retrapped doves.

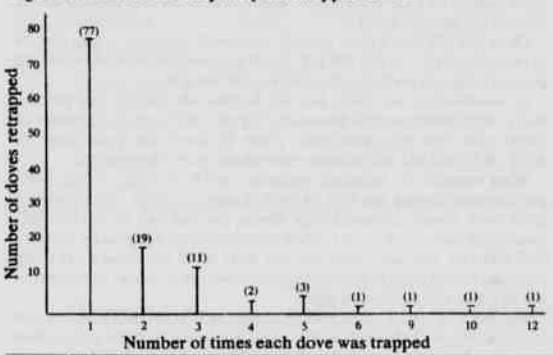


Figure 2. Daily pattern of AHY and HY doves. Solid line - AHY. Broken line - HY.

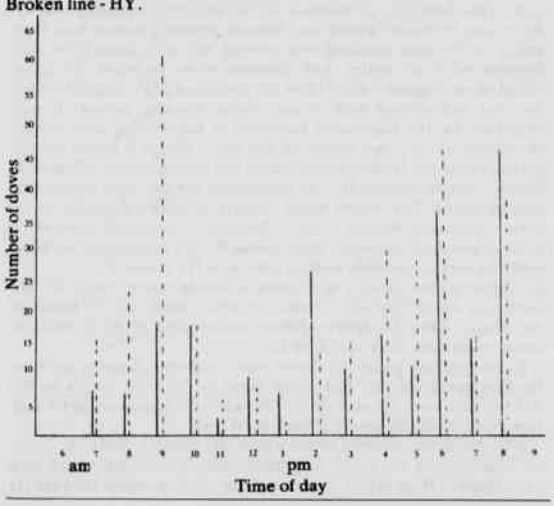


Figure 3. Daily pattern of male and female AHY doves. Solid line - AHY male. Broken line - AHY female.

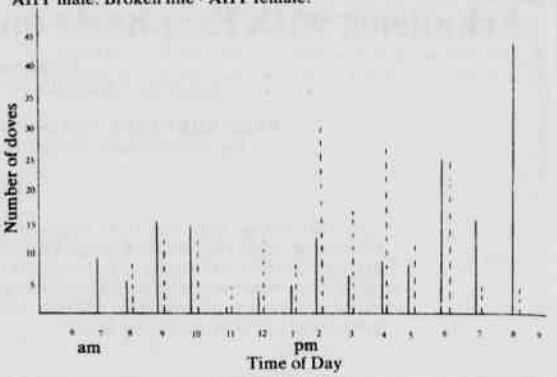


Figure 4. Daily pattern of female AHY doves during the first half of the season.

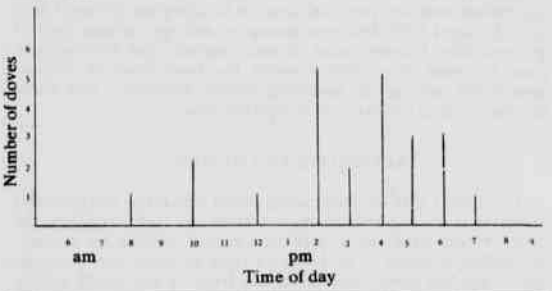
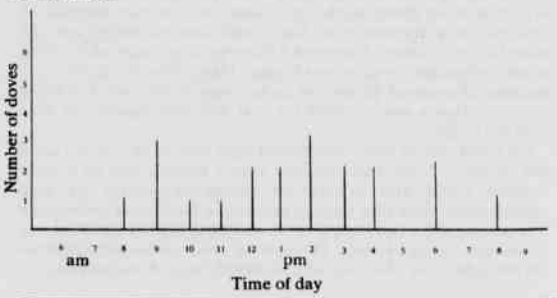


Figure 5. Daily pattern of female AHY doves during the second half of the season.



LITERATURE CITED

BOOTH, T., P.R. DORRIS, W. HUNTER and B. MAYS. 1975. Preliminary dove banding studies in Clark County, Arkansas. Proc. Ark. Acad. Sci. 29:22-23.

KEELER, J.E. and F. WINSTON. 1951. Mourning dove trapping in the Southeast. Bird-banding 22(4):174-179.

THOMFORDE, L.L. 1972. Migration and mortality of banded mourning doves. J. Minn. Acad. Sci. 38(2/3):72-76.

WIGHT, H.M., L.H. BLANKENSHIP and R.E. TOMLINSON. 1967. Aging mourning doves by outer primary wear. J. Wildlife Management 31(4):832-835.

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Table I. Sex and Age Data of 343 Mourning Doves Banded

After Hatching Year		Hatching Year		Unknown Age	
male	104	male	8	male	1
female	24	female	16	female	2
unknown	22	unknown	164	unknown	2
total	150	total	188	total	5

Overall total - 343

Table II. Sex and Age Data of Retrapped Doves

After Hatching Year		Hatching Year		Unknown	
Number Retrapped	% of Total	Number Retrapped	% of Total	Number Retrapped	% of Total
43	37	71	61	2	2

Total number of birds retrapped - 116 (this is 34% of the total trapped)

Table III. Injury Data, AHY and HY Doves

Injuries to After Hatching Year Doves		Injuries to Hatching Year Doves	
male	36 (34.6%)	sex not figured	
female	9 (37.5%)		
unknown	6 (27.2%)		
total injured	51 (34% of AHY birds)	total injured	59 (31% of HY birds)

Table IV. List of Abnormalities Noted on Mourning Doves

1243-84164 Deformed tarsus on right leg
1243-84166 Toenail missing on right foot
1243-84510 Swelling on tarsus of right leg
1243-84535 Small swelling on manus of left wing
1243-84580 White patch found on newly molted 2nd primary of both wings
1243-84584 Had an enlargement of the joint above the toes of the right leg
1263-58549 Missing toenail on middle toe of right foot
1263-58833 Upper mandible 1 cm longer than lower
1263-58621 Feathers are missing and scabs had formed around a large wound on the breast

Table V. List of Animals Other Than Doves Trapped During Banding Season

Common Name	Number Trapped
Common grackle	211
Red-winged blackbird	11
Brown-headed cowbird	19
Cardinal	78
English sparrow	8
Bobwhite	7
Mockingbird	8
Eastern meadowlark	1
Loggerhead shrike	2
Lark sparrow	2
Eastern cottontail	3
Opossum	1