CONTRIBUTION OF SEPTEMBER MOURNING DOVE NESTING TO TOTAL PRODUCTION IN CENTRAL TEXAS[1]

ALBERT E. BIVINGS IV, Department of Wildlife and Fisheries Sciences, Texas A&M University. College Station, TX 77843[2]
NOVA J. SILVY, Department of Wildlife and Fisheries Sciences, Texas A&M University. College Station, TX 77843

Abstract: Nesting success and production of mourning doves *(Zenaida macroura)* was studied on the Texas A&M University Campus during 1978 and 1979. Data indicated that mourning dove nesting and production were highly variable between months within years and monthly between years. Nests initiated in August were the most important both in quantity (20% of total) and rate of success (32% of total). Although September-initiated nests contributed only 5% of total nests and 6% of fledged young, August-initiated nests still active during early September contributed 20% of the total fledglings in 1978 and 26% in 1979.

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The mourning dove is a widely distributed migratory game bird of great economic and recreational importance. It breeds throughout Mexico, the 48 contiguous states of the United States, and the southern portion of Canada (Keeler 1977). The estimated annual harvest of nearly 50 million birds is more than all other migratory game birds combined. The total out-of-pocket expenditures for dove hunting is estimated to be nearly $87 million annually (Keeler 1977).

It has been proposed that opening the hunting season in September might be responsible for the decline (Dolton 1978) in overall dove populations as hunting losses of breeding adults could cause a substantial loss of nestlings (Haas 1980). Although the principal nesting season runs from April to September, nests have been reported in every month of the year in California, Louisiana, and Texas (Anonymous 1957). Laub (1956) reported reduced nestling survival when 1 adult was lost prior to the fledging of nestlings. Both Bivings (1980) and Haas (1980) also reported slightly reduced nesting success when 1 parent was lost. However, Bivings (1980) noted no significant ($P > 0.05$) difference in nesting success between 1- or 2-parent nests when chicks were greater than 6 days old. None of these studies address either the magnitude and success of September nesting or the extent of hunting mortality on nesting mourning doves.

Data on population structure and relative success of production in mourning doves have been gathered from collection of wings, coo-count indexes, and from nesting studies. Although many years of data have been collected across the nation from coo-count transects, Baskett et al. (1978) suggests that the value of these data to determine success of production is questionable. Recent studies by Sadler et al. (1970), Haas and Amend (1976, 1979) and Bivings and Silvy (1980) have demonstrated possible bias in using hunter collected wings to determine production

[1] Texas Agricultural Experiment Station Technical Article 17192.

[2] Present address: Wildlife Assistance Office, U.S. Fish and Wildlife Service, Stuttgart, AR 72160.

success for mourning doves. Studies of nesting mourning doves avoid most of these problems.

There has been a substantial resident population of mourning doves on the 325 ha campus at Texas A&M University (TAMU) for many years. This population was the object of intensive research during the early 1950's (Swank 1952). Our study was part of a nationwide study of mourning dove nesting; the objective of our study was to estimate nesting success and production of mourning doves on the TAMU Campus study area.

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METHODS

Study Area

Intensive study was concentrated in an approximately 10 ha area of the central campus of TAMU at College Station, Texas. This area contained 208 trees of which 65% were live oak *(Quercus virginiana)* mixed with 11% slash pine *(Pinus elliottii),* 7% cedar elm *(Ulmus crassifolia),* and several other species. This area had approximately the same percentage of live oaks but contained none of the next 3 most abundant trees as determined by Swank (1955). However, of these 3 tree types, only eastern red cedar *(Juniperus virginiana)* is still common on campus. Slash pine, the 2nd most abundant tree during our study, were all saplings and were not attractive to nesting mourning doves. All trees on the study area appeared to have been planted for landscaping. The study area was split into 2 equal-sized sections for convenience and each tree was given individual identity to aid in monitoring dove nest sites.

Nesting and Production

Nesting and production data were gathered by regular observations of nests on the campus study area from February 1978 through November 1979. The area was carefully searched for all visible nests at least 3 days per week whenever active nests were present and once per week at other times if males were observed actively seeking mates. Nests were given a coded number indicating the specific tree, position in each tree, and number of uses of each platform. Adult doves were flushed from the nests weekly except when young were visible in the nests. Nest contents were observed with binoculars or with a mirror attached to a long pole which could be held over the nest. Young were aged according to the criteria listed by Hanson and Kossack (1963). On those days when adults were not flushed, the nest was considered to be active if an adult was on the nest or chicks could be seen in or near the nest. Nests were considered to be successful if at least 1 chick fledged or reached 10 days of age and appeared to have fledged. Nesting and production data were tested for differences both within years and between years using a Chi-square test (Steel and Torrie 1960). This method allowed comparisons with Swank's (1955) data. Nests were categorized as to the month the eggs were

estimated to have been laid (Hanson and Kossack 1963) or to the month found if the laying dates could not be estimated.

RESULTS AND DISCUSSION

There were 78 mourning dove nests found in the study area in 1978 (Table 1). Nesting success in 1978 ranged from 0% in February and April to 80% in July and September. The overall nesting success for the year was 35%. There were 158 nests found in the study area in 1979. While nesting success ranged from 54% in August to 0% in September, the overall nesting success in 1979 was only 27%.

Significant ($P < 0.05$) differences in nesting success between months were observed during 1978 and 1979. The distribution of nesting success was significantly ($P < 0.05$) different between 1978 and 1979. Additionally, the distribution of nesting success between months in which nesting occurred in 1978 was significantly ($P < 0.05$) different from a uniform distribution but was not so during 1979. No significant ($P > 0.05$) difference was observed in overall nesting success between 1978 and 1979.

Table 1. Mourning dove nesting and success by month on the Texas A&M University Campus February 1978 - October 1979.

	Number		% Success		% of Total Successful Nests	
Month	1978	1979	1978	1979	1978	1979
February	2	0	0	0	0	0
March	5	14	40	14	7	5
April	17	23	0	35	0	19
May	17	35	12	31	7	26
June	13	29	31	14	15	10
July	10	21	80	10	30	5
August	9	38	78	54	26	36
September	5	8	80	0	15	0
October	0	0	0	0	0	0
Totals	78	158	35	26.6	100	101

Production of fledglings by month on the study area ranged from 0 to 14 doves in 1978 and from 0 to 27 in 1979. The percentage of eggs hatched was 50% in 1978 and 30% in 1979, whereas the percentage of eggs that produced fledglings was 35% in 1978 and 24% in 1979. The percentage of chicks which were successfully fledged was 69% in 1978 and 78% in 1979. The distribution of fledgling production (Fig. 1) was significantly ($P < 0.05$) different from 1978 to 1979, whereas the percent of eggs hatched was significantly ($P < 0.05$) higher in 1978. However, there were no significant ($P > 0.05$) differences between the number of eggs that later produced fledglings, the number of chicks that fledged, or total fledglings per nest despite there being nearly twice as many nests in 1979 as in 1978. Thus, the data indicate that mourning dove nesting and production on the TAMU Campus is highly variable between months within years and monthly between years.

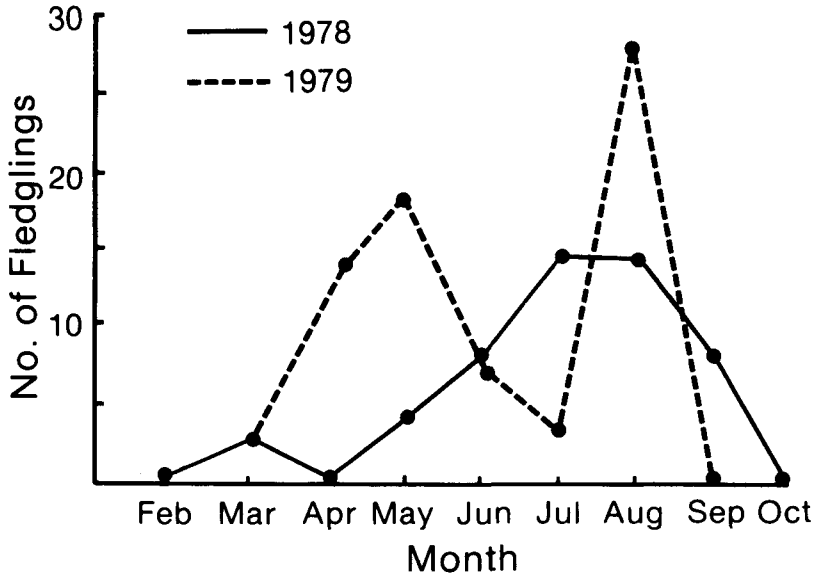

Fig. 1. Production of fledgling mourning doves on the Texas A&M University Campus in 1978 and 1979.

The percentage of successful nests initiated in September was 15% in 1978 and 0% in 1979. These were similar to the findings of Swank (1955) who reported that less than 5% of the September initiated nests were successful. A close look at fledgling production (Fig. 1) shows that August was the highest month for production of fledglings in both years. Although these nests were pooled, many were initiated in mid- to late August and were still active with chicks less than 7 days old on 1 September; these accounted for 20% of the total fledglings in 1978 and 26% in 1979. However, almost all (83%) of the nests were fledged by 15 September. Since the study area is located in the south mourning dove hunting zone of Texas where the hunting season presently does not open prior to 15 September, few of these nests would be expected to suffer losses due to hunting mortality of the parents.

CONCLUSIONS

Data indicate that mourning dove nesting on the TAMU Campus is a precarious enterprise with success varying greatly between months within years and monthly between years. Although dove nests initiated in September probably do not account for a substantial portion of production except in extreme years, many nests initiated in August remain active in early September and are important both in quantity and success of nests. Until conclusive data on the exploitation rate of nesting adults are available, it is prudent to protect these August-initiated nests. Our data suggest there would be little gain in dove production by opening of the hunting season later than 15 September. Thus, it appears that at least in this part

of Texas, the policy of the Texas Parks and Wildlife Department of opening the mourning dove season on 15 September or later should be maintained.

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