

Success of Single-parent Mourning Dove Nests in September

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Abstract: Little information is available on the success of single-parent mourning dove (*Zenaida macroura*) nests after 1 September, the time period when hunting usually begins. To answer this question, data from single-parent nests were collected on the Texas A&M University Campus during September 1979. Data for 44 nests where 1 parent was removed were compared to 31 control nests. Success of single-parent nests with young 0–6 days of age was reduced. We did not observe significant reduction in success for nests containing young exceeding 6 days of age, or for single male versus single female parents. Most known mortality was from weather or avian predators. While no eggs from single-parent doves produced fledged young, some hatched but were subsequently lost to weather. Most control eggs also were lost to weather.

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Mourning dove hunting provides an estimated 10 million days of hunting recreation annually for 2.3 million hunters who harvest about 41.3 million birds (Sadler 1993). Hunting mourning doves in September, while some birds may be on the nest, has been opposed by some individuals and organizations (Geissler et al. 1987). Because doves have been reported nesting in every month of the year in California, Louisiana, and Texas (Anon. 1957), however, hunters in the deep south would have little or no opportunity to hunt if regulations prohibited hunting when doves may be nesting.

An important question is to what extent does hunting reduce mourning dove productivity. Books-Blenden et al. (1984) addressed this question by looking at the number of doves that still had active crop glands after opening of the hunting season. It was assumed that doves with active crop glands were

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caring for young in the nest or had recently fledged young. Geissler et al. (1987), Bivings and Silvy (1981), and others reported results of a nationwide study comparing mourning dove production in hunted and unhunted areas during September. Laub (1956) reported nestlings must be 6–8 days old to be successfully fledged by a single parent. Haas (1980) found no successful single-parent nests when nestlings were 5 days old when an adult was lost. Both of these studies were conducted throughout the nesting season with few nests followed after 1 September, the period when hunting usually begins. The purpose of our study was to determine success of single-parent nests in September. The authors thank the Wildlife Management Institute, the American Petroleum Institute, the Tom B. Slick Fellowship Fund, the Texas A&M Association of Former Students, and the Texas Agricultural Experiment Station for their support of this project.

Methods

This study was conducted in September 1979 on the 400-ha campus of Texas A&M University in the Post Oak Savannah Ecological Region (Gould 1969) of central Texas. The campus is dominated by live oaks (*Quercus virginiana*). The initial experimental design called for taking equal numbers of male and female doves from each of 10 nests at 3 stages of development: prior to hatching ($N = 20$), 1–6 days old ($N = 20$), and nestlings more than 6 days old ($N = 20$), and having 10 control nests at each of the 3 stages ($N = 30$). As nests were located on the study area, they were first determined to as to stage of development and then randomly assigned to either male removal, female removal or control. Because fewer than expected numbers of nests were located on the study area, efforts were made to at least have a minimum of 5 nests in each category so Chi-square analyses could be performed on the data. When possible, adults were live-trapped with mist nets, held until after the study, then released. Other adults were collected using a pellet rifle. All nests were checked daily until fate of nests were known. Data from nests where either the male or female were removed were compared to the success (if at least 1 young fledged) of control nests (2-parent nests, $N = 31$) using a Chi-square contingency table (Steel and Torrie 1960).

Results

Forty-four adult doves were removed from active nests (Table 1). Data from 1 additional nest were excluded because the female apparently acquired a replacement male 1 day after her mate was removed. This pair fledged 2 young. Overall nesting success did not differ significantly ($P > 0.225$) between experimental and control nests. When data were evaluated as to nesting stage (eggs, young 0–6 days old, or young > 6 days old), only the group of young 0–6 days old suffered significantly ($P < 0.00001$) reduced survival. No differences ($P = 1.00$) were observed between nests with males removed versus females.

Table 1. Nesting success of single-parent and control nests of mourning doves on the Texas A&M University Campus, September 1979.

Nest group	Nesting stage							
	Eggs		Young 0-6 days old		Young >6 days old		Total	
	Success	Fail	Success	Fail	Success	Fail	Success	Fail
Disturbed								
Male removed	0	7	2	8	5	0	7	15
Female removed	0	8	2	7	5	0	7	15
Control	4	15	6	0	5	1	15	16

Discussion

Superficially, results of our study were similar to Laub (1956) and Haas (1980). However, in our study, 2 of 15 single parents incubated eggs to hatching. Laub (1956) and Haas (1980) observed single parents to be unsuccessful in hatching eggs. Goforth (1964) observed a captive male that successfully incubated eggs and cared for young until they fledged. However, fledging took 3-4 days longer than normal. One of our single parents incubated 2 eggs for at least 3 days before 2 chicks hatched. One of these chicks was lost to unknown causes, but the other survived for at least 8 days until it died of exposure after more than 50 hours of nearly continuous rain. That same rainy period killed the other young hatched from eggs in a single-parent nest and destroyed all other disturbed nests and most control nests which were in the egg stage at the start of the study. There were no observations of chick mortality from starvation. All dead chicks found had food in their crops; most had full crops.

Another single parent reared 2 chicks from 1 or 2 days old to nearly fledging before at least one of the young was taken by a predator. The 1 dead chick located was so close to fledging that the other may have been successfully fledged. One single parent was able to fledge 2 chicks which had been 4-5 days old when the other parent was removed. These 2 chicks fledged within normal time. At least 1 chick fledged from each 4 nests where a parent was removed when young had been 0-6 days old. Both Laub (1956) and Haas (1980) hypothesized that it was not possible for a single parent to fledge chicks which were < 6 days old when a mate was lost. Our data refute this hypothesis.

Weather and predation were the major factors limiting single-parent nest success in both our study and Laub's (1956). This was expected because a single parent would have to leave the nest frequently to feed, and during this time chicks would be unprotected from weather and predators.

Summary

Our study showed reduced survivorship of nests with eggs and significantly reduced survivorship of nests with young 0-6 days old. Furthermore, while

there were no eggs that produced fledged young, some eggs hatched, but the young birds were subsequently lost to weather. Some eggs would be expected to produce fledglings during years of light or no September rainfall. Thus, if 1 parent of a pair died during nesting, reduced survivorship of eggs and young <6 days old could be anticipated. It should not be assumed, however, that all such nests fail.

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